

Schaffer

133

THE
CHIRURGICAL WORKS
OF
PERCIVALL POTT, F.R.S.

AND
SURGEON TO ST. BARTHOLOMEW'S
HOSPITAL.

A NEW EDITION, WITH ADDITIONS.

IN THREE VOLUMES.

V O L. II.

*A certis potius et exploratis petendum esse præsidium; id est, his quæ
Experientia in ipsis curationibus docuerit; sicut in cæteris omnibus artibus:
nam ne Agricola quidem aut Gubernatorem Disputatione, sed Ufu fieri.*

A. CORN. CELSUS.

L O N D O N :

Printed for T. LOWNDES, J. JOHNSON, G. ROBINSON, T. CADELL,
T. EVANS, W. FOX, J. BEW, and S. HAYES.

MDCCLXXXIII.

CHIRURGICAL WORKS

PERCIVAL POTT, F.R.S.

SURGEON TO ST. BARTHOLOMEW'S

HOSPITAL

AND

OF THE

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A
T R E A T I S E
O N
R U P T U R E S.

VOL. II.

B

P R E F A C E.

THE disease which makes the subject of the following tract, is one in which mankind are, on many accounts, much interested; no age, sex, rank, or condition of life, is exempt from it; the rich, the poor, the lazy, and the laborious, are equally liable to it; it produces certain inconvenience to all who are afflicted by it; it sometimes puts the life of the patient in such hazard, as to require one of the most delicate operations in surgery; and it has in all times, from the most ancient, down to the present, rendered those who labour under it subject to the most iniquitous frauds and impositions.

The generality of mankind look upon a rupture as an imperfection in their form, as a disease which impairs their strength, and lessens their generative faculty: which apprehensions, though absolutely groundless, are so

rooted, in the majority of those who are afflicted with the disorder, as to make them not a little miserable. They who lie in wait to avail themselves of the weaknesses of the infirm and fearful, are well acquainted with these fears, and very lucrative use do they make of them; they well know, that the man who regards his disorder as an imperfection in his form, or as a cause of any debility, more particularly a venereal one, will be very unwilling to have it known, and as glad to get rid of it, at any expence or trouble; by this means these impostors are furnished with opportunities of subjecting the ignorant, and credulous, to tedious confinements, painful applications, and even hazardous operations; and of defrauding the timorous and bashful of large sums of money, for imaginary diseases, and pretended cures.

Complaints of this sort, coming from the profession, are generally ill received, and being set to the account of prejudice, interest, and craft, are very little regarded; but in this mankind do us great injustice. A rupture is a disease, which, if judiciously and honestly treated from the first, can never be
productive

productive of much profit to a surgeon; it requires very little attendance, and neither external application, nor internal medicine; though the reduction of the gut, and the application of a proper bandage, are necessary, yet this is in general so soon, and so easily accomplished, that it must be obvious that no great emolument can from thence be derived; and therefore, if the profession may be allowed to be impartial in any thing which relates to themselves, I think they may in this, from which they never can reap considerable profit, unless the disease has been greatly neglected, or ill-treated: it is from fraud and delusion principally that such advantage can be derived; it is from the patient's ignorance of the true nature of his disorder, and from bold and lying promises made of a perfect cure.

It is far from my intention to defend the body of surgeons from any accusation which may justly be brought against them; but as the reason given by most of the patrons of quackery for their supporting it, is, that the medical world, through mere obstinacy, never depart from the customs of their ancestors,

nor attempt any thing new, though mankind might be much benefited by such inventions; and as I think that such imputation cannot with any colour of justice be made against us, I would beg leave to be indulged a few words on this subject.

That the merit of many of the old practitioners was great; that they left behind them many proofs both of their sagacity, and their dexterity; that we have received large information from their writings; and that, cæteris paribus, he who is best acquainted with them will be the best surgeon, is well known to every one who is at all conversant with them, and can be denied only by those who are not. But, on the other hand, it must also be allowed, that both their theory and their practice laboured under great disadvantages, which rendered their judgment of many diseases erroneous, and their treatment of them irrational and unsuccessful.

The very imperfect state of their anatomy was one great source of error; which kind of knowledge has been so cultivated in our times as to convert ignorance into a vice, and to render those who are deficient in it perfectly inexcusable.

As

As this is the only true and solid basis from which all chirurgical knowledge must for ever spring, so it has of late years been productive of many real and great improvements in the art.

The ancient surgery was coarse, and loaded with a farrago of external applications, some of which were horridly, and yet unnecessarily painful, and others altogether useless; whilst the operative part of the art was encumbered with a multitude of awkward unmanageable instruments, and pieces of machinery.

The practitioners of the present time have brought the practice into a much narrower compass, have rendered it less painful and more intelligible; they have reduced the number of instruments, and by the extreme simplicity of those which they now use, they have considerably assisted the dexterity of an operator, and shortened the time of an operation; they have almost thrown aside the burning cautery, and are much more sparing in the use of caustic applications than their predecessors used to be; they now accomplish many cures by mild and gentle means, which formerly were thought not obtainable but by

much severity; to say nothing of the indelible marks which such practice left behind it. The havock formerly made both of limbs and lives, by the use of long forceps in gun-shot wounds; the explosion of the long-prevailing notion that such wounds were poisonous, the easy superficial method in which they are now in general treated, and the opportunities which such treatment gives for nature to exert those powers with which the Almighty Author has furnished her, do credit to the modern practitioners: the double incision in amputations; the present method of removing cancerous breasts, and encysted tumors; the lateral operation for the stone in the bladder; the use of the cutting gorget; amputation in the joint of the shoulder; the present method of letting out all the water at once from an ascites; the improvements in the treatment of the fistula lachrymalis; the cure of the vari and valgi, with many others which might be named; in short, the superior neatness, ease, and expedition of the present surgery, when compared to the ancient, are certain and undoubted improvements made by the modern practitioners, and such as mankind are much benefited by, as their pains
are

are thereby lessened, the elegance of their figure preserved, and the time of their confinement shortened ; all which will, I presume, be allowed to be advantages, while human nature shall remain sensible of pain, while scars shall be thought deformities, or confinement be deemed irksome.

Nor is our conduct, with regard to the particular disease which makes the subject of the following tract, in the least degree blameable ; so far from it, that the treatment which we meet with sometimes is most singularly unjust, we being often severely censured for that from which we ought to derive praise : so little do we deserve the reflection cast upon us, of being content with what our fathers taught us, and neither improving the art ourselves, nor encouraging those who do ; that, on the contrary, much pains have been taken to improve this particular part of surgery, and the publick ought to thank us for not persevering in the use of the old, tedious, painful, and hazardous processes, after we found them to be in general ineffectual.

But though I would at all times vindicate the profession from every unjust attack, I would by no means be supposed to think that there is
not

not large room left for the industry both of us and our successors ; some of the operative parts of the art are still capable of improvement, and the treatment of some diseases might certainly be altered for the better.

Whether our future labours shall be crowned with success or not, still I think it will appear to every one at all versed in the history of surgery, that the practitioners of the present time are so far from deserving the character which they who know nothing of the art have given of them, that they really deserve a very contrary one ; since, instead of obstinately adhering to the practice of their ancestors, they have differed from it in many instances, where they found they could do it with safety, and to the advantage of mankind ; and have endeavoured to advance the utility of their profession, by the only means whereby it is capable of being improved, viz. by a sedulous application to anatomy, by the frequent examinations of dead morbid bodies, and by making such experiments on the living, as they had just reason to think would prove beneficial ; candidly acknowledging, at the same time, where they have found their art insufficient, and not persisting in tormenting their fellow-creatures merely for gain.

In

In the following treatise I have endeavoured to express myself in as plain, explicit, and intelligible a manner as I am able, and the subject will admit; being desirous as much as I can to inform mankind of the true nature of the disease, of the danger they incur, and the frauds they are liable to, from the ignorance of one set of quacks, and the worse qualities of another; to show what the art of surgery in judicious hands is capable of doing, and how essentially the conduct of an impostor differs from that of an honest man, who will never be ashamed of confessing that he cannot do what is not in his power.

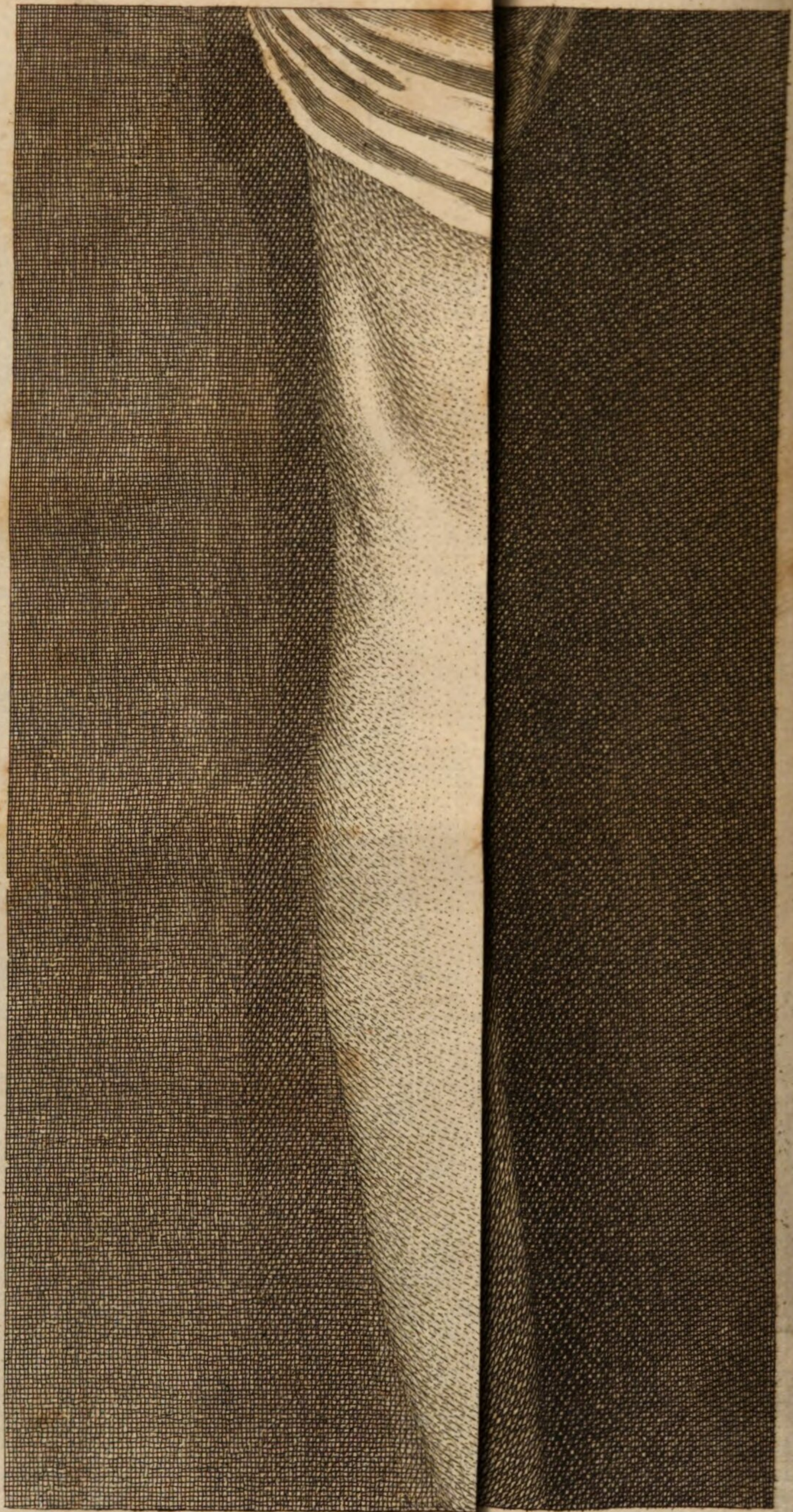
In the first edition of this book were many faults; some of the press, some of the author; in this some pains have been taken to lessen both: of typographical errors very few, if any, will, I hope, be found; and wherever it has appeared to me that the matter of the treatise was obscure, erroneous, or deficient, I have altered, corrected, and added to it.

I am still far from thinking that it is perfect or faultless; but, on the other hand, I am not conscious of having advanced any thing in it which is not strictly true, and agreable to the
most

most successful practice: improvement of the art of surgery, and the relief of mankind, are my two principal objects; and if what I have now, or at any other time written, shall be found to have contributed toward accomplishing either of those ends, I hope the reader will excuse all those lesser faults,

—— *quas aut incuria fudit,
Aut humana parum cavit natura.*

A T R E A-



A
T R E A T I S E
O N
R U P T U R E S.

S E C T I O N I.

BY the term RUPTURE, DESCENT, or HERNIA, is in general meant a swelling produced by the falling down or protrusion of some part, or parts, which ought naturally to be contained within the cavity of the belly.

The places in which these swellings make their appearance, in order to form what is called a RUPTURE, are the groin,
the

the navel, the labia pudendi, the upper and fore part of the thigh, and every point of the anterior part of the abdomen.

The parts, which by being thrust forth from the cavity in which they ought naturally to remain, form these tumors, are a portion of the omentum, a part of the intestinal canal, and * sometimes (though very rarely) the stomach.

From these two circumstances, of situation, and contents, are derived all the different appellations by which herniæ are distinguished: for example, they are called *inguinal*, *scrotal*, *femoral*, *umbilical*, and *ventral*, as they happen to make their appearance in the groin, cod, thigh, navel, or belly. If a portion of intestine only forms it, it is called *enterocele*, *hernia intestinalis*, or gut-rupture; if a piece of omentum only, *epiplocele*, *hernia omentalis*, or caul-rupture; and if both intestine and omentum contribute mutually to the formation of the tumor, it is called *entero-epiplocele*, or compound rupture.

* The liver, spleen, uterus, bladder, &c. have at different times been found in different herniæ, but these are so rare as not to come within a general description.

If

If the piece of gut or caul descends no lower than the groin, it is said to be incomplete, and is called *bubonocoele*; if the scrotum be occupied by either of them, the rupture is said to be complete, and bears the name of *oscbeocoele*: the latter used by our forefathers to be attributed to laceration of the peritoneum, the former to its dilatation merely.

The opinion, that the scrotal hernia is occasioned by a forcible division, or breach made in the peritoneum, has always been, and still is, with the unknowing, a very prevailing one, though without any foundation in truth; both the scrotal, and femoral, pass out from the abdomen by openings which are natural to every human body; as well those who have not ruptures, as those who have. The former, that is the scrotal, descend by means of an aperture in the tendon of the external oblique muscle, near the groin; designed for the passage of the spermatic vessels in men, and the ligamenta uteri in women; and the latter, under the hollow made by Poupart's, or Fallopius's ligament, at the
upper

upper part of the thigh, along with the great crural vein and artery.

The pair of muscles called *obliqui externi ascendentes*, cover all that part of the belly which is without bone, and the lower and anterior parts of the thorax. They are fleshy on the sides, and tendinous in the middle, and lower part; they spring from the seventh and eighth ribs, and from all below them, by fleshy portions, which indigitate with corresponding parts of two other muscles, called the *serratus major anticus*, and the *latissimus dorsi*, and becoming tendinous, are inserted into what is called the *linea alba*, the spine of the *os ilium*, and into the *os pubis*.

At the lower part of the belly, on each side, a little above the last-mentioned bone, the fibres of the tendon of this muscle separate from each other, and form thereby two apertures, through which pass the spermatic vessels in men, and the *ligamenta uteri* in women. These openings are of an oval figure, and have an oblique direction from above downward; the upper part of them is rather wider than the lower,

lower, and they are of larger size in men than in women.*

The tendinous fibres of this muscle, as they proceed from its fleshy part obliquely downward, have several small apertures for the passage of vessels and nerves; and at their insertion into the os pubis, they cross one another, and are as it were interwoven, by which means their insertion is strengthened, and their attachment made firmer.

What is called by the particular name of Poupart's ligament is really nothing more than the lower border of this tendon, stretched from the fore part of the os ilium, or haunch bone, to the os pubis, and turned or folded inward at its interior edge.

The other muscles of the belly are the obliquus internus, the transversalis, the rectus, and the pyramidalis, none of which have any concern with our present subject.

* A detachment of fibres from the fascia lata of the thigh is generally united with the tendon composing the aperture in the obliquus externus, which mixture or connection of fibres will in some measure account for the pain which they who labour under strangulated ruptures feel upon standing upright, and the relief which bending the thigh upward toward the belly always gives them.

The spermatic chord does indeed pass under the lower edge or border of the two first of these, but at such a distance, and in such manner, that no action of these muscles can any way affect, or ever make any stricture either on it, or on a hernia accompanying it; they have no perforations, or apertures, though so many writers of credit (even late ones) have both described and delineated them,* consequently they can

* However incredible and strange it may seem, yet I am convinced, that operations have been performed by the information obtained from books only, without any previous anatomical knowledge, any practice on dead bodies, and barely any, if any, opportunities of seeing such operations performed by others on the living: how grossly must such an operator be deceived by the account of the rings, as they are usually, though absurdly called, of the abdominal muscles: after he has divided the first, or that of the external oblique, he will expect to find a second in the internal, and a third in the transversalis, and will never suppose that he is got into the cavity of the belly, 'till he has divided all the three: it is therefore of the utmost consequence that this matter be set right, and that, notwithstanding what has been said on this subject by writers of great eminence, every surgeon be informed that the external oblique muscle is the only one which has any opening in it; that the description given by Mr. Cheselden of these muscles, in the last edition of his anatomy, is erroneous, and all descriptions and all delineations (some of which are to be found

can have no share in the embarrassment of the parts contained in a hernial sac, nor require any division in that operation, which becomes sometimes necessary towards setting them free : which is a fact of no small consequence to an operator.

The inside of these muscles, and indeed the whole cavity of the belly, is lined with a smooth, firm, but easily-dilatable membrane, called the peritoneum, a minute account of which would lead me beside my present purpose, and therefore I shall only observe, that it lines the whole abdomen, and gives an external coat to every viscus contained in it.

Behind the peritoneum lies a loose, cellular membrane, by some called its appendix, which is found in different quantity, in different places. In some the cells are empty, and are immediately visible upon being blown into ; in other parts it is plentifully stocked with fat, and, though somewhat varied in its appearance in diffe-

found even in later writers) of more openings than that single one on each side, are not representations of nature, but are the images of a luxuriant fancy, and have no foundation in truth.

rent places, is found in most parts of the body.

This cellular membrane, void of fat, surrounding the spermatic vessels, as they pass forth from the cavity of the abdomen into the groin, is called the tunica vaginalis of the chord, or tunica communis vasorum spermaticorum; which chord, thus enveloped, passing under the inferior edge or border of the transversalis, and internal oblique muscles, and through the perforations or natural apertures of the external oblique, descends through the groin to the testicle, in such manner, that the spermatic vessels in their passage from the cavity are really and truly behind the peritoneum.

The tunica vaginalis testis is a membrane perfectly distinct from this, forming a particular cavity which includes the glandular substance of the testicle, and has nothing to do with a common rupture. In every foetus, until, or very near until the time of birth, there is an open and free communication between the cavity of this last tunic, and that of the belly, for the passage

passage of the testicle from the abdomen into the scrotum : soon after birth this passage closes and becomes impervious ; nor is there ever after the time of such closing, any communication between the cavity of the belly, and that of the tunica vaginalis testis. But though the passage remains in general for ever shut, yet the place where its orifice, or mouth, was, may always be known by a kind of cicatricula, much like to what appears within the abdomen, opposite to the navel, or place where the umbilical vessels of the foetus passed to and from the placenta ; at the place of which cicatricula, the peritoneum is generally weaker than elsewhere. Now, if it be remembered, that this weak part is necessarily opposite to the natural opening in the tendon of the external oblique muscle, that neither the internal oblique muscle, nor the transversalis, come low enough to make any resistance to whatever shall press against this part, and that the acknowledged use of the muscles of the abdomen is by pressing on all its contained viscera to assist digestion, the expulsion of the faeces, urine, and foetus ; and that in many natu-

ral actions, such as sneezing and coughing, &c. and in all great exertions of strength and force, our erect posture must necessarily occasion a pressure to be made against the lower part of the inside of the belly, by some of its contents; a very probable and satisfactory account of the origin of the common inguinal and scrotal hernia may be collected.

In young children this descent, or protrusion, happens most frequently when the child strains in crying, or in expelling its fæces: as soon as the effort ceases, and the child is quiet, the part generally returns up again, and the swelling disappears; the nurses call it wind, and it is at first most frequently neglected, as the child is not apparently injured by it, and few people are sufficiently aware of its possible consequences.

Not that the disease is by any means confined to children: adults frequently are attacked by it, either by falls, strains, great exertions of strength, difficulty of expelling hard fæces, or a general laxity of frame.

Whether

Whether the rupture be inguinal, scrotal, or femoral, and whether it consists of intestine, or omentum, or both, the protruded part must carry before it a part of the membrane which lines all the internal surface of the abdominal muscles, or rather the whole cavity of the abdomen, and is called peritoneum. This portion of the peritoneum, including the piece of gut or caul, is known by the name of the *hernial sac*, and is larger, or smaller, according to the quantity of intestine, or omentum, contained in it: it is at first small and thin, and in ruptures which are not of the congenial kind, seldom comes lower than the groin * at first, but by repeated descents it extends itself lower and lower, 'till it gets quite into the scrotum, and still as it is extended in length, it becomes thicker and firmer in texture, 'till in old age, or

* I will not say positively that all those ruptures which appear in the scrotum of very young children are congenial, (that is, have the tunica vaginalis testis for their hernial sac) but all those which I have had an opportunity of examining have proved so; and I believe it would be no erroneous criterion, whereby to distinguish the common rupture from the congenial, in infants

old ruptures, it is found of very considerable thickness.

As all parts of the peritoneum are of a very extensible, dilatable nature, and as the hernial sac has this property in common with many other parts of the body, of thickening as it extends, it does in some cases stretch to a very considerable size, and contain such a quantity of intestine and omentum as is almost incredible. This circumstance of its becoming thicker as it is more extended is perhaps the reason why some people, and among them the late Mr. Cheselden, have been of opinion that the sac of a hernia was not an elongation of the peritoneum, but produced like that of an aneurism, and some other tumors, by mere pressure of the common cellular membrane; an opinion, which is manifestly and demonstrably erroneous.

Whether the hernial sac in its infant state, while it is very thin, and may possibly have contracted no adhesion to the cellular membrane composing the tunica communis of the spermatic vessels, does ever return back into the belly again, I will
not

not take upon me to determine absolutely ; but am much inclined to think it does not, as well from the facility with which the gut or caul most commonly descend after they have been down a few times, as from a fulness which is always to be perceived in the spermatic process of such people as have ever been ruptured. Some few of these I have had opportunities of opening after death, and have always found the sac, either in the groin or scrotum, (plainly a continuation of the peritoneum) remaining firmly attached to, and connected with the tunica communis ; nor did I ever see, either in the dead or the living, any reason or authority for the supposition, that it is capable of returning back into the abdomen after it has been fairly pushed out through the aperture in the tendon.*

I in-

* This is a circumstance of some importance in the general treatment of ruptures. Upon it depends the truth or falshood of the late doctrine of the possibility of returning the intestine included in the hernial sac, and confined by such a stricture of the sac itself, as may prove fatal after the gut is fairly got into the abdomen again. A case, of which

I intentionally avoid saying any thing about the old doctrine of the difference between dilatation and laceration of the peritoneum, it being now generally known and acknowledged, that to whatever size the hernial sac may be extended, and however large its contents may be, it is merely dilated, and hardly ever burst or broken: the particular kind of case, which a few years ago gave rise to a sort of renewal of the old doctrine of ruptures by laceration of the hernial sac, viz. that kind of hernia in which the gut and testicle are found in the same bag, and in immediate contact with each other, being now sufficiently known and explained. See Sect. X. of this Tract.

which more than one instance has been given to us, but in which I am much inclined to believe that some mistake has been made, and which I also think may be accounted for in another and more satisfactory manner. Upon this also depends the practicability or impracticability of returning a strangulated piece of gut back into the belly, after having divided the stricture made by the tendon, without opening the hernial sac, and consequently the propriety or impropriety of making such attempt. All endeavours to do what is impracticable, being in cases of importance much worse than doing nothing.

THE

THE signs, or marks, of a common inguinal or scrotal rupture, are in general a swelling in the upper part of the scrotum, or in the groin, beginning at the opening in the abdominal muscles where the spermatic vessels pass down from the belly; which tumor has a different appearance, and different feel, according to the nature of its contents, and to the state and quantity of them.

If a portion of intestine forms it, and that portion be small, the tumor is small in proportion; but though small, yet if the gut be distended with wind, inflamed, or have any degree of stricture made on it, it will be tense, resist the impression of the finger, and give pain upon being handled. On the contrary, if there be no stricture made by the tendon, and the intestine suffers no degree of inflammation, let the prolapsed piece be of what length it may, and the tumor of whatever size, yet the tension will be little, and no pain will attend the handling it; upon the patients coughing,

coughing, it will feel as if it was blown into, and in general it will be found very easily returnable.

If the hernia be of the omental kind, the tumor has a more flabby and a more unequal feel; it is in general perfectly indolent, is more compressible, gives the scrotum a more oblong, and less round figure, than it bears in an intestinal hernia; and if the quantity be large, and the patient adult, it is in some measure distinguishable by its greater weight.

If it consists of both intestine and omentum, the characteristic marks will be less clear than in either of the simple cases, but yet will to any body who is accustomed to these diseases be sufficiently so, to enable them to distinguish it from any other complaint.

The only diseases with which a true hernia can be confounded, are the *venereal bubo*, the *hydrocele*, and that defluxion on the testicle, called *hernia humoralis*; from each of which it is certainly very distinguishable.

The circumscribed incompressible hardness, the situation of the tumor and its
being

being free from all connection with the spermatic process, will sufficiently point out the first, at least while it is in a recent state; and when it is in any degree suppurated, he must have a very small share of the *tactus eruditus*, who cannot feel the difference between matter, and either a piece of intestine, or omentum.

The perfect equality of the whole tumor, the freedom and smallness of the spermatic process above it, the power of feeling the spermatic vessels and the vas deferens in that process, its being void of pain upon being handled, the fluctuation of the water, the gradual formation of the swelling, its having begun below and proceeded upwards, its not being affected by any posture or action of the patient, nor increased by his coughing or sneezing, together with the absolute impossibility of feeling the testicle at the bottom of the scrotum,* will

*. By this remark it may possibly be thought that I mean to say, that the testicle is always to be felt at the bottom of the scrotum in a true hernia; which in general is true, but not without some exceptions. In recent ruptures, of the common

will always, to any intelligent person, prove the disease to be a *hydrocele* of the *tunica vaginalis testis*. And in the *hernia humoralis*, the pain in the testicle, its enlargement, the hardened state of the epididymis, and the exemption of the spermatic chord from all unnatural fulness, are such marks as cannot easily be mistaken; not to mention the generally preceding gonorrhea. But if any doubt still remains of the true nature of the disease, the progress of it from above downward, its different state and size in different postures, particularly lying and standing, together with its descent and ascent, will, if duly attended to, put it out of all doubt, that the tumor is a *true hernia*.

If an attempt be made for the reduction of the rupture, and it consisted of a piece

common kind, whether of the gut, or caul, while the hernial sac is thin, has not been long, or very much distended, and the scrotum still preserves a regularity of figure, the testicle may almost always be easily felt at the inferior and posterior part of the tumor: but in old ruptures, which have been long down, in which the quantity of contents is large, the sac considerably thickened, and the scrotum of an irregular figure, it often happens that the testicle is not to be felt, neither is it in general easily felt in a *congenial hernia*, for very obvious reasons.

of

of intestine, it generally slips up all at once. In its return it makes a kind of guggling noise, and when it is up, the scrotum and process will be found free from any præternatural fulness. If a portion of omentum formed it, it retires more gradually, without any of the noise of the former, and requires to be followed by the finger to the last. If both gut and caul contributed to the formation of it, the gut generally goes up first, and leaves a flabby irregular kind of body behind it, which still possesses the process or scrotum, according as the disease was bubonocoele, or oscheocoele, and requiring still farther compression, at last ascends.

The intestine said to be most frequently found in a scrotal hernia, is the ileum, though it is also allowed that the cæcum and part of the colon have been met with.

This is one of the many maxims which writer receives from writer, and inattentive readers all believe.

That a portion of the ileum does often descend in a hernial sac is beyond all doubt;

doubt; but that the descent, or more properly protrusion, of a part of the cæcum and colon is rare, is not true, for it happens very frequently. Perhaps it would not bear to be established as a general rule; but from what has fallen within my observation, in frequently performing the operation for a strangulated rupture, it has appeared to me, that the greater number of those in whom it has become necessary, (all attempts to reduce the parts by hand having proved fruitless) have consisted of the cæcum with its appendicula, and a portion of the colon. Nor will the size, disposition, and irregular figure of this part of the intestinal canal, appear upon due consideration a very improbable cause of the difficulty or impossibility of reduction by the hand only.

I have already mentioned the principal circumstances by which hernias are distinguishable from other diseases. But it is also to be observed, that the same kind of rupture in different people, and under different circumstances, wears a very various face;

face ; the age and constitution of the subject, the date of the disease, its being free, or not free from stricture, or inflammation, the symptoms which attend it, and the probability or improbability of its being returnable, necessarily producing much variety ; the degree of hazard attending this complaint will be also more or less as it shall happen to be circumstanced.

If the subject be an infant, the case is not often attended with much difficulty, or hazard ; the softness and ductility of their fibres generally rendering the reduction easy as well as the descent ; and though from neglect or inattention it may fall down again, yet it is as easily replaced, and seldom produces any mischief: I say seldom, because I have seen an infant, one year old, die of a strangulated hernia, which had not been down two days, with all the symptoms of mortified intestines.

If the patient be adult, and in the vigour of life, the consequences of neglect, or of mal-treatment, are more to be feared than at any other time, for reasons too ob-

vious to need relating. The great and principal mischief to be apprehended in an intestinal hernia, is an inflammation of the gut, and an obstruction to the passage of the aliment, and fæces through it; which inflammation and obstruction are generally produced by a stricture made on the intestine, by the borders of the aperture in the tendon of the abdominal muscle, through which the hernia and its sac pass. Now it must be obvious, that the greater the natural strength of the subject is in general, and the more liable to inflammation, the greater probability there must be of stricture, and the more mischief likely to ensue from it. In very old people, the symptoms do not usually make such rapid progress, both on account of the laxity of their frame, and their more languid circulation; and also that their ruptures are most frequently of ancient date, and the passage a good deal dilated: but then, on the other hand, it should also be remembered that they are by no means exempt from inflammatory symptoms; and that if such should come on, the infirmity of old

old age is no favourable circumstance in the treatment which may become necessary.

If the disease be recent, and the patient young, immediate reduction, and constant care to prevent its pushing out again, are the only means whereby it is possible to obtain a perfect cure.

If the disease be of long standing, has been neglected, or suffered to be frequently down, and has given little or no trouble, the aperture in the abdominal muscle, and the neck of the hernial sac may both be presumed to be large; which circumstances in general render immediate reduction less necessary and less difficult, and also frustrate all rational expectation of a perfect cure. on the contrary, if the rupture be recent, or though old has generally been kept up, its immediate reduction is more absolutely necessary, as the risque of stricture is greater from the supposed smallness of the aperture, and narrowness of the neck of the sac. If the rupture be very large and ancient, the patient far advanced in life, the intestine not bound by any degree of

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stricture,

stricture, but does its office in the scrotum regularly, and no other inconvenience be found to attend it, but what proceeds from its weight, it will in general be better not to attempt reduction, as it will in these circumstances most probably prove fruitless, and the handling of the parts in the attempt may so bruise and injure them as to do mischief: but this must be understood to be spoken of those only in which there is not the smallest degree of stricture, nor any symptom of obstruction in the intestine; such circumstances making reduction necessary at all times, and in every case.

With regard to the contents of a hernia, if it be a portion of omentum only, and has been gradually formed, it seldom occasions any bad symptoms, though its weight will sometimes render it very troublesome. But if it be produced suddenly by effort or violence, that is, if a considerable piece of the caul by accident slip down at once, it will sometimes prove painful, and cause very disagreeable complaints; the connection between the omentum, stomach, duodenum, &c. being such
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as to render the sudden descent of a large piece of the first sometimes productive of nausea, vomiting, colic, and all the disagreeable symptoms arising from the derangement of these viscera. When the piece of caul is engaged in such a degree of stricture as to prevent the circulation of blood through it, it will sometimes, by becoming gangrenous, be the occasion of very bad symptoms, and even of death, as I have more than once seen: and thus, as a mere omental hernia, it may sometimes be subject to great hazard. But even though it should never be liable to the just-mentioned evil, that is, though the portion of the caul should remain uninjured in the scrotum, yet it renders the patient constantly liable to hazard from another quarter; it makes it every moment possible for a piece of intestine to slip into the same sac, and thereby add to the case all the trouble and all the danger arising from an intestinal rupture. It is by no means an uncommon thing for a piece of gut to be added to a rupture, which had for many years been merely omental, and for that

piece to be strangulated, and require immediate help.

An old omental hernia is often rendered not reducible, more by an alteration made in the state of the prolapsed piece of caul, than by its quantity. It is very common for that part of the omentum which passes through the neck of the sac to be compressed into a hard, smooth body, and lose all appearance of caul, while what is below in the scrotum is loose and expanded, and enjoys its natural texture; in this case reduction is often impossible, from the mere figure of the part; and I have so often seen this, both in the living and the dead, that I am satisfied, that for one omental rupture rendered irreducible by adhesions, many more become so from the cause above-mentioned.

In the sac of old omental ruptures that have been long down, and only suspended by a bag truss, it is no very uncommon thing to have a pretty considerable quantity of fluid collected: this, in different states and circumstances of the disease, is of different colour and consistence, and
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feldom so much in quantity as to occasion any particular attention to it ; but on the other hand, it sometimes is so much in quantity as to become an additional disease to the original one. I have more than once been obliged to let it out, in order to remove the inconvenience arising from its weight, and the distension of the scrotum, which I have also seen become gangrenous by the neglect of this operation.

If the hernia be of the intestinal kind, merely, and the portion of gut be small, the risque is greater, strangulation being more likely to happen in this case, and more productive of mischief, when it has happened : for the smaller the portion of gut is which is engaged, the tighter the tendon binds, and the more hazardous is the consequence. I have seen a fatal gangrene, in a bubonocoele, which had not been formed forty-eight hours, and in which the piece of intestine was little more than half an inch. There are few practitioners who have seen business, but know the truth of this ; but perhaps the reason of it is not sufficiently explained to the

unknowing: it is this; when a considerable portion of intestine passes out from the belly in a hernial sac, it necessarily and unavoidably carries with it a proportional quantity of the mesentery, which every body knows is a strong double membrane. When the prolapsed part is at all considerable, this double membrane is again in some measure folded on itself, and takes off a good deal of the effect of the stricture on the intestine. Now although this circumstance will not prevent the effect, if the means of relief be totally neglected, yet it will most certainly retard the evil, and give more time for assistance; whereas, when there is little or none of the mesentery got through the tendon, and the thin, tender intestine bears all the force of the stricture, it is immediately brought into hazard.

The practical inference to be drawn from hence is too obvious to need mentioning.

In the intestinal, as in the omental hernia, they which have been often or long down, are in general more easily returned,
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and do not require such immediate assistance, as they which have seldom been down, or have recently descended; and in the one kind of hernia as well as in the other, the state of the hernial sac with regard to size, thickness, &c. depends very much on the date of the disease, and the regard that has been paid to it.

If the hernia be caused by a portion of the intestine ileum only, it is in general more easily reducible than if a part of the colon has descended with it, which will also require more address and more patience in the attempt. The reduction of a mere intestinal hernia too (*cæteris paribus*) will always remain more practicable than that of a mere omental one, after it has attained to a certain size and state, as the part contained within the former is liable to less alteration of form than that within the latter; which alteration has already been mentioned as no infrequent hindrance of the return of an old caul rupture.

Not that the parts within a mere intestinal hernia are absolutely exempt from such an alteration as may render their return

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turn into the belly impracticable, even where there is no stricture; for I have seen that part of the mesentery, which has lain long in the neck of the sac of an old rupture, so considerably hardened and thickened, as to prove an insuperable obstacle to its reduction.

Upon the whole, every thing considered, I think it may be said, that an intestinal rupture is subject to worse symptoms, and a greater degree of hazard than an omental one, though the latter is by no means so void of either as it is commonly supposed to be; that bad symptoms are more likely to attend a recent rupture than one of ancient date; that the descent of a very small piece of intestine is more hazardous than that of a larger; that the hernia which consists of gut only is in general attended with worse circumstances than that which is made up both of gut and caul; and that no true judgment can be formed of any rupture at all, unless every circumstance relating to it be taken into consideration.

THE cure of a rupture is either perfect, (called also radical) or imperfect, which is called palliative.

This distinction, which is just and true, and founded both on reason and experience, has frequently been misunderstood by the generality of mankind, and has therefore been the cause of much undeserved censure on the practitioners of surgery.

The truth is, that though the events are extremely different, yet the chirurgical means which are made use of in either case are exactly the same, viz. reduction of the protruded parts, and retention of them when so reduced by proper bandage : these, sometimes, and in some circumstances, produce a perfect cure ; at other times, and under other circumstances, prove only a palliative one ; and this uncertainty of event, being dependent on causes which a surgeon can neither foresee, nor direct with any tolerable degree of certainty, should warn him against being too forward in making a promise.

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To those who are ignorant of the anatomical structure and disposition of the parts concerned in the disease, this assertion has the air of a paradox: they naturally suppose that the means which are or should be made use of to obtain a radical or perfect cure, are or ought to be different from those used toward obtaining only a palliative one; and in this mistake they are confirmed by the bold, though false assertions of all rupture-quacks.

To labour under a troublesome disorder, perhaps in the most joyous and active part of life, is very disagreeable: to be told that a palliative cure, by the constant use of a truss, is all that can reasonably be expected, gives small comfort, and renders the insinuation, that the regular professors of surgery do not understand the proper treatment of this disease, credible, or at least makes it be believed: *quod volumus, facile credimus*. Ignorance of the true nature of the disorder, with a strong desire to be well, on the side of the patient, and bold plausible promises on the side of the pretender, encourage the delusion, 'till time, and the continuance of the rupture, prove the fraud, which few are
found

found ingenuous enough to own. Whether it proceeds from a false bashfulness, which makes a man be ashamed of acknowledging that he has been imposed upon ; from a desire merely to conceal the disorder ; from a pleasure arising from seeing others deceived as well as themselves ; or from a much worse cause than either of these, I know not : but it happens not very infrequently that the patient, though perfectly undeceived, and convinced of the imposition, concurs in propagating the delusion, and asserts that he has received a cure, which he knows he has not. Of this I could produce many instances, and some of those among people of such rank, as one would expect should set them above such dissingenuousness.

I have already said, that to replace the prolapsed body, or bodies, within the cavity of the belly, and to prevent their falling out again, by means of a proper bandage, is all that the art of surgery is capable of doing in this disease : and what I said was strictly true. But it must also be remembered, that nature, according to the age of the patient, the date of the disease, the kind of rupture, and

and some other circumstances, is often capable (when properly assisted, and not obstructed) of doing more, and of confirming that as a perfect cure in some, which in others she leaves imperfect, and constantly requiring the assistance of art : for when the portion of gut or caul, or whatever formed the tumor, is perfectly and properly replaced in the belly, and an opportunity thereby given to the aperture in the tendon to contract itself, and for a proper bandage to bring the sides of the entrance of the hernial sac as near together as it will admit, the surgeon has really done his part : what remains is that of nature : and whether she will be capable of so contracting the part, as to prevent a future descent or not, is matter of great uncertainty ; it is a circumstance which art has very little power of assisting, and which can be known only from the event.

On the contrary, all the pretensions which have at different times been made to remedies, indued with a capacity of healing and consolidating the parts supposed to be broken or torn, or of constringing such as are dilated, have

have all proved inefficacious and delusive, to say the best of them: the parts concerned in this disease, and which ought to be affected by the operation of such remedies, are absolutely out of the reach of any applications or medicines whatever: the relief which some people have found while under such processes, has been from the long rest which they have been subjected to, or from the strict bandage which has been put upon them; either of which will in some cases do a great deal; while the remedies which are either applied or taken, are made use of merely to deceive, and never had, or can have, any share in the real cure of a rupture.

By what has been said, I must beg not to be understood to mean, that when the gut or caul have been once replaced, the patient can receive no farther benefit from surgical assistance; nor that every rupture in persons of mature age is incapable of perfect cure: this is far from my meaning, and far from truth. There are many circumstances attending ruptures, which will require frequent assistance in order to render a cure more probable; and there are many ruptures
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in persons of mature age, which will admit of perfect cure, if properly and judiciously managed from the first.

I only mean to contradict that positive assertion which all rupture-quacks make use of, and which too many of mankind believe, viz. that there are medicines and applications which are specific in the cure of this disease, and that they (such quacks) are possessed of them ; both which are absolutely false.

As this is a matter of some importance to mankind, and may possibly be rendered still more intelligible by a few words, I beg leave to be indulged in them.

The general doctrine is, that the ruptures of infants, and of very young children, frequently admit of a perfect cure ; those of adults less frequently ; and those of old people seldom or never ; all which, with certain limitations, is true.

The great and material difference between these consists in the state of the hernial sac, and that of the aperture in the abdominal tendon through which it passes.

The sac of a hernia has already been described as being an elongation or process of
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the peritoneum, or general lining of the cavity of the belly, thrust down before the body constituting the swelling; which body is enveloped in it as in a bag, somewhat resembling what is vulgarly called a thumb-stall, or the finger of a glove cut off. While the hernia is recent, this bag is thin and fine, like the rest of the membrane of which it is a portion; and being of a very dilatable nature, is easily enlarged, according to the quantity of contents which insinuate themselves into it: like some other parts of the body, it increases in thickness and toughness as it increases in capacity; and as it seldom, if ever returns back into the belly after it has once passed out from it, it is by the repeated descents of a portion of gut or caul into it, gradually enlarged in size, and consequently in thickness; insomuch that in old ruptures that have been neglected, or deemed irreducible, or been suffered to remain long, or always down, it generally acquires a very considerable degree of toughness, thickness, and hardness. In those ruptures which are not

lower than the groin, and while it remains there is generally small and thin; but by frequent protrusions of the intestine or omentum, it is pushed by degrees into the scrotum, and then most frequently acquires a pyriform kind of figure, having its broader part in the scrotum, and its narrow one, or neck, in the groin.

In infants, in very young subjects, and in recent cases, this sac, from its soft, thin state, is capable of having its upper part, or neck, so compressed by means of a bandage, as either to procure an union of the sides with each other, or at least so to lessen the diameter of its passage as to prevent the descent of any thing into it from the belly: this produces what is commonly called a perfect cure.

In those of mature age, or whose ruptures are of some standing, the entrance into the sac is generally large, in proportion to the size and age of the patient, and thicker and firmer than in the former state, for reasons just given; in these, therefore, the closing or compression of its neck, enough to hinder the falling down of any thing

thing from the abdomen, is more difficult to accomplish, and more unlikely to succeed. In very ancient people, or very old ruptures, success is still more improbable, for the same reasons.

A bandage therefore, or truss, though it is the only remedy, at all ages, and in all states, of reducible ruptures, yet acts in a different manner, and is capable of producing very different effects, according to the circumstances of the cases in which it is applied: in very young persons, a radical cure is frequently the consequence; in the middle-aged it often gives the tendon and mouth of the sac such opportunity of being contracted, as to produce nearly the same event; but as it only serves by the mere pressure of the pad to keep the parts in their proper place, in very old people it can hardly ever be laid aside, without hazard of a new descent, which, while it is worn properly, it will almost always prevent.

From the foregoing short account, the following facts may, I think, be collected.

1. That the principal circumstances attending a rupture must be subject to great variety, according to the age and constitu-

tion of the patient, the date of the disease, &c. and consequently that the precise case, and age, in which a radical or perfect cure is obtainable or not, is not easy to be determined, though a judicious man will most commonly know when it is very improbable.

2. That recent ruptures, if immediately and properly taken care of, are capable of a perfect cure at almost any age.

3. That though the thickness of the hernial sac, and the largeness of the abdominal aperture, are generally mentioned as the two causes why old ruptures do not admit of a cure, yet in fact the latter is only a consequence of the former.

4. That all external applications in the attempt toward the cure of a rupture, must, if they are used with any design at all, be intended either to constringe the aperture through which the parts have descended, or to lessen or contract the diameter of the neck of the hernial sac.

5. That the construction of the tendinous aperture (supposing such medicines could penetrate to it) is impossible, while it continues dilated, by an old, thick, tough hernial

nial sac, which sac, from the connections it always has with the cellular membrane of the spermatic chord, can never be returned into the belly ; and therefore,

6. That such medicines can be serviceable no other way than by rendering that sac again thin, fine, and compressible ; which, from the nature of things and from all experience, is absolutely impracticable.

S E C T. II.

THE different treatment which ruptures may require, being dependent on different circumstances attending the disease, I shall for the better information of the inexperienced reader divide them into four classes ; under which, I think, may be comprehended not only all the kinds of hernias, but every particularity also with which they may happen to be distinguished.

1. Under the first, I reckon those which are capable of easy and immediate reduction, and are not attended by any troublesome or bad symptoms.

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2. Under the second, those which have been so long down, that the contained parts are either so altered in form, or have contracted such adhesions and connections, as to be absolutely incapable of being reduced at all.

3. Under the third, I comprehend those in which such stricture has been made on the protruded parts, as to bring on pain, and produce such an obstruction in the intestinal canal, as to render immediate reduction necessary, but at the same time difficult.

4. And under the fourth, I shall place those in which the return of the parts by the mere hand is absolutely impracticable, and in which the patient's life can be saved only by a surgical operation.

The first is very frequently met with in infants, and sometimes in adults, and is too often neglected in both. In the former, as the descent seldom happens but when the infant strains to cry, and the gut is either easily put up, or returns, sua sponte, as soon as the child becomes quiet,
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it often is either totally unattended to, or an attempt made to restrain it only by a bandage made of cloth or dimity, and which being ineffectual for such purpose, lays the foundation for future trouble and mischief.

This is in great measure owing to a common opinion, that a young infant cannot wear a steel truss: a generally prevailing error, and which ought to be corrected. There is no age at which such truss may not be worn, or ought not to be applied; it is, when well made, and properly put on, not only perfectly safe and easy, but the only kind of bandage that can be depended upon: and as a radical cure depends greatly on the thinness of the hernial sac, and its being capable of being so compressed as possibly to unite, and thereby entirely close the passage from the belly, it must therefore appear to every one who will give himself the trouble of thinking on the subject, that the fewer times the parts have made a descent, and the smaller and finer the elongation of the peritoneum is, the greater the probability of such cure must be.

The same method of acting must for the same reasons be good in every age in which a radical cure may reasonably be expected ; that is, the prolapsed parts cannot be too soon returned, nor too carefully prevented from falling down again, every new descent rendering a cure both more distant and more uncertain.

As soon as the parts are returned, the truss should be immediately put on, and worn without remission, care being taken, especially if the patient be an infant, to keep the parts on which it presses constantly washed, to prevent galling.

It can hardly be necessary to say, that the surgeon should be careful to see that the truss fits, as his success and reputation depend on such care. A truss which does not press enough is worse than none at all, as it occasions loss of time, and deceives the patient or his friends ; and one which presses too much, or on an improper part, gives pain and trouble, by producing an inflammation and swelling of the spermatic chord, and sometimes of the testicle.

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In adults, whose ruptures are of long standing, and accustomed to frequent descent, the hernial sac is generally firm and thick, and the aperture in the tendon of the abdominal muscle large; the freedom and ease with which the parts return into the belly, when the patient is in a supine posture, and the little pain which attends a rupture of this kind, often render the persons who labour under it careless: but all such should be informed, that they are in constant danger of such alteration in their complaint, as may put them into great hazard, and perhaps destroy them. The passage from the belly being open, the quantity of intestine in the hernial sac is always liable to be increased, and when down, to be bound by a stricture. An inflammation of that portion of the gut which is down, or such obstruction in it as may distend and enlarge it, may at all times produce such complaints as may put the life of the patient into imminent danger; and therefore, notwithstanding this kind of hernia may have been borne for a great length of time, without having proved

proved either troublesome or hazardous, yet as it is always possible to become so, and that very suddenly, it can never be prudent or safe to neglect it.

Even though the rupture should be of the omental kind, (which considered abstractedly is not subject to that degree or kind of danger to which the intestinal is liable) yet it may be secondarily, or by accident, the cause of all the same mischief; for while it keeps the mouth of the hernial sac open, it renders the descent of a piece of intestine always possible, and consequently always likely to produce the mischief which may proceed from thence.

They who labour under a hernia thus circumstanced, that is, whose ruptures have been generally down while they have been in an erect posture, and which have either gone up of themselves, or have been easily put up in a supine one, should be particularly careful to have their truss well made, and properly fitted; for the mouth of the sac, and the opening in the tendon being both large and lax, and the parts having been used to descend through them,
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if the pad of the truss be not placed right, and there be not a due degree of elasticity in the spring, a piece of intestine will, in some posture, slip down behind it, and render the truss productive of that very kind of mischief which it ought to prevent.

It is scarcely credible how very small an opening will serve for a portion of gut or caul to insinuate themselves into at some times. Now, though in persons of mature age it most frequently proves impracticable so to compress the mouth of the hernial sac, as absolutely to close it, yet by the constant use of a well-made truss, it may be so lessened, as to render the descent of a piece of intestine into it much more difficult : from whence we may learn the great consequence of having the part completely reduced before the truss is applied, and the danger that may be incurred by laying such bandage aside after it has been worn some time ; since the same alteration which renders the descent of the gut less easy, will also make the reduction more difficult, if a piece should happen to get down :

down : and hence also we may learn why the bandage should be long and unremittingly worn by all those whose time of life makes the expectations of a perfect cure reasonable, many of the ruptures of adults being owing to the negligent manner in which children at school are suffered to wear their trusses.

I know a gentleman who has for some years had an omental rupture, which was neglected while he was young, and he having naturally a lax habit, and the abdominal opening being much dilated, he finds it extremely difficult to keep it up, even with the best truss he can get, behind which it will sometimes slip down : when this happens, it gives him such immediate and acute pain at his stomach, and makes him so intolerably sick, that he is obliged immediately to throw himself on his back, and procure the return of the piece of omentum.

S E C T.

S E C T. III.

IN the second class I ranked those cases in which the parts constituting the hernia are found irreducible, but not in a state of inflammation, nor producing any troublesome or dangerous kind of symptoms.

This incapacity of reduction may be owing to several causes, but most frequently arises either from the largeness of the quantity of the contents, from an alteration made in their form and texture, or from connections and adhesions which they have contracted with each other, or with their containing bag.

I have already mentioned it as my opinion that ruptures are sometimes rendered difficult to be reduced, by that portion of the intestinal canal which is called the cæcum, or the beginning of the colon, being contained in the hernial sac. Of which fact I am as much convinced as the nature of such kind of things will permit; that is, by observations made both on the living and the dead.

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When a hernia of this kind (viz. one containing such a part of the intestinal tube) has been long neglected, and suffered to remain in the scrotum without any bandage at all to support its weight, the hernial sac being constantly dragged down, and kept in a state of distention, necessarily becomes thick, hard, and tough; by this means the diameter of its neck is lessened, and the return of the intestine back from the scrotum into the belly rendered more and more difficult, as the parts through which it is to pass become harder, and less capable of yielding. This will, indeed, in time prove an obstruction sufficient to hinder any part of the intestine, or even of the omentum, from being returned; but the more the difficulty is, which proceeds from the mere figure and size of the portion of gut, the greater will be the obstruction when added to that arising from the just mentioned cause.

An alteration produced by time, and constant, though gentle, pressure in the form and consistence, or texture of the omentum, is also no infrequent cause, why
neglected

neglected omental ruptures become irreducible.

The cellular membrane in all parts of the body, however loose and light its natural texture may be, is capable of becoming hard, firm, and compact, by constant pressure. Of this there are so many, and so well known instances, that it is quite unnecessary to produce any.

The omentum, from its texture, is liable to the same consequence. When a portion of it has been suffered to remain for a great length of time in the scrotum, without having ever been returned into the belly, it often happens that although that part of it which is in the lower part of the hernial preserves its natural soft, adipose, expansile state, yet all that part which passes through what is called the neck of the sac is, by constant pressure, formed into a hard, firm, incompressible, carnos kind of body, incapable of being expanded, and taking the form of the passage in which it is confined, exactly filling that passage, and rendering it impossible to push up the loose part which fills the scrotum.

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This is no theoretic opinion, but a fact, which I have seen and proved often; and whoever will reflect on it, will immediately find in it one insuperable objection to the return of some old omental ruptures.

The same reason for incapacity of reduction is also sometimes met with in ruptures of the intestinal kind, from an alteration produced on that part of the mesentery which has been suffered to lie quiet for a great length of time in the neck of an old hernial sac.

The other impediment, which I mentioned, to the return of old ruptures, is connection and adhesion of the parts, either with each other, or with the bag containing them. This is common to both the intestinal and omental hernia, and is produced by slight inflammations of the parts, which have been permitted to lie long in contact with each other, or perhaps in many cases from the mere contact only. These adhesions are more or less firm in different cases, but even the slightest will almost always be found an invincible objection

jection to the reduction of the adherent parts, by the hand only.

Many, or perhaps most of these irreducible ruptures become so by mere time and neglect, and might at first have been returned; but when they are got into this state, they are capable of no relief from surgery but the application of a suspensory bag, to take off or lessen the *inconvenience arising from the weight of the scrotum.

People in this situation should be particularly careful not to make any attempts beyond their strength, nor aim at feats of agility; they should take care to suspend the loaded scrotum, and to keep it out of

* I am not unaware that most of these are capable of being cured by the operation for the bubonocoele, as it is called; but as I should never think of proposing it in any case in which there are not symptoms that threaten the life of the patient, so I have not mentioned it in this place as a means of cure. I also am not unapprised what influence a successful operation or two of this sort has had on the unknowing; but I also know that such accidental successes have emboldened the same operators to commit more than one or two murders, in similar cases; and that, from the prevalence of fashion, some of these rupture-doctors have been largely rewarded, when they ought to have been hanged.

the way of all harm from pressure, bruise, &c. When the tumor is very large, a soft quilted bolster should be worn at the bottom of the suspensory to prevent excoriation, and the scrotum should be frequently washed for the same reason; a loss of skin in this part, and in such circumstances, being sometimes of the utmost importance. They ought also to be particularly attentive to the office of the intestinal canal, to see that they do not by any irregularity of diet disorder it, and keep themselves from being costive, for reasons too obvious to need relating. By these means, and with these cautions, many people have passed their lives for many years free from disease, or complaint, with very large irreducible ruptures.

On the other hand, it is fit that mankind should be apprised that the quiet, inoffensive state of this kind of hernia is by no means to be depended upon; many things may happen to it, by which it may be so altered, as to become hazardous, and even fatal: an inflammation of that part of the gut which is down, any obstruction to the
passage

Among the ruptures which have been thought not reducible, and treated as such, there have been some which, upon more judicious and more patient attempts, have been found capable of reduction.

When this is suspected to be the case, the proper method is by absolute rest, in a supine posture, for a considerable length of time, by great abstinence, and the use of evacnants, so to lessen the size of the

“duction; it was on the right side, and distended the
“scrotum to such a size, that it measured, from the open-
“ing in the abdominal muscle, to the bottom of the tu-
“mor, fourteen inches and an half, and round the tumor
“twenty-two inches; the ring, as it is called, was very
“large, and had no appearance of stricture; the sac was
“not so thick as might have been expected, and contained
“no water; the jejunum ileum, the sac of the colon, call-
“ed the cæcum, with its appendicula vermiformis, to-
“gether with a large portion of omentum, were the con-
“tents; the duodenum was so displaced by the weight
“of the rest of the guts within the sac, that its direction
“from the pylorus was perpendicular; the caul adhered
“to the hernial sac in several places, the intestine in
“none; the testicle, included in its tunica vaginalis, was
“much wasted; the spermatic artery and vein ran down
“behind the hernial sac, but the vas deferens ran up on
“the inner and left side of it, at a great distance from
“them, through the whole of its course, but neverthe-
“less would not have been in the way of the operation
“had it been necessary.”

parts

parts in the hernial sac as to render them capable of passing back again into the belly.

This method has now and then succeeded, and in some cases is worth the trying; but previous to the attempt, there should be some circumstance which makes success probable; and there should also be good reason to believe, that the habit and age of the patient will bear the necessary confinement and evacuation; otherwise, even though he should get rid of his rupture, he may be much worsted by the experiment.*

If such attempt succeeds, a truss should be immediately put on, and worn constantly, without remission; for, in these people, the largeness of the abdominal aperture, the thickness of the hernial sac, and the relaxation of the mesentery, make a new descent always to be apprehended and guarded against.

An omental rupture, which has been so long in the scrotum as to have become

* Hildanus gives an account of a man radically cured by six months confinement to bed, in the case of a rupture of twenty years date.

irreducible, is very seldom attended * with any bad symptoms, considered abstractedly: but, as I have already said, it is constantly capable of being the occasion of an intestinal hernia, and all its consequences; neither is that all, for the omentum, either so altered in form and texture, or so connected as to be incapable of reduction, may by accident inflame, and either become gangrenous or suppurate, and be the occasion of a great deal of trouble. Of this I have seen two or three instances, one of which I will relate.

I was desired to see a gentleman, from whose scrotum near a pint of brown, sanious, foetid fluid had been discharged two or three days before. The account he gave of himself was as follows: That he had been from his youth subject to the descent of a soft, flabby body into the scrotum, when he was in an erect posture, but which for many years he could put up when he pleased, and which always went

* Garengot relates the case of an epiplocele producing very bad symptoms; and so does Dionis.

up when he lay down; that having no trouble from it, and being naturally shy and bashful, he had done nothing to it, nor shewed it to any one; that from the sudden spring of an unruly horse, he had struck it with great violence against the pommel of his saddle, which had given him immediate pain; that the next day it swelled still more, and became more painful, but that being afraid, or ashamed, he still concealed it, and only anointed it with something greasy, till at last he could bear it no longer: the person to whom he shewed it took it for a hydrocele, tapped it, and let out the fluid just mentioned; and on the fifth or sixth day from this operation I saw it.

The whole scrotum was much inflamed, and the orifice made by the trocar foul and sloughy: he had a degree of heat and fever upon him, which forbade any operation at that time; and therefore I desired that he might be dressed soft and easy, have an emollient cataplasm applied to the whole scrotum, lose some blood, and have a glyster.

By proper care the tumor subsided, his fever left him, and the slough casting off largely brought the putrid omentum within view; upon sight of which I would have laid the whole open, but was not permitted. I enlarged the orifice a little, and in so doing cut through an old hernial sac, which was very thick and hard; what part of the omentum was loose I brought away with a pair of forceps; but the separation of the whole took up much time, and the hard hernial sac caused so many abscesses, and occasioned so large a discharge, that being a valetudinarian, he had certainly sunk under it, had it not been for the free use of the bark.

If, instead of this method of treating it, I had been permitted to have laid it open through the whole of its length, removed the rotten omentum, and cut off some part of the sides of the hernial sac, the cure would have been shortened, and the scrotum would have been left in a much better state.

That an omental rupture, which has so long resisted all attempts for reduction, as
to

to create a belief of its being absolutely irreducible, may now and then, by long rest and abstinence, become capable of being returned, I am under no doubt, for reasons which have already been mentioned: and not long ago, I had myself a patient in St. Bartholomew's hospital, who underwent the operation for the radical cure of a hydrocele, who had also an omental hernia, which I and some others had often tried ineffectually to reduce: this, during the time of his confinement to bed after the operation, went up of its own accord, and was ever afterwards kept there by a truss.

It sometimes happens in old compound ruptures, that the piece of intestine is reducible, and that of the omentum is not; in which case we are told, that the portion of intestine should be kept up by a truss, whose pad may be so made, as not to press on the omentum while it restrains the intestine.

I will not deny that this may now and then be practicable, but it is not often so, and it ought to be particularly attended to,

to, and very carefully watched, lest a small piece of gut slip down, and being pressed on by the truss produce fatal mischief.

I have seen an omental rupture, in which the piece included in the sac had the knotty hardness, the pain, and every other symptom of a cancer.

S E C T. IV.

UNDER the third division I reckon those ruptures which are reducible, but whose reduction is difficult, and which are attended with pain and trouble and hazard.

Difficulty of reduction may be owing to several causes. The size of the piece of omentum, or the inflamed state of it; the quantity of intestine and mesentery, an inflammation of the gut or its distention by fæces or wind; or the smallness of the aperture of the tendon through which the hernia passes. But to whatever cause it be owing, if the prolapsed body cannot be immediately replaced, and the patient suffers pain, or is prevented thereby from
going

going to stool, it is called an incarcerated hernia, a strangulated hernia, or a hernia with stricture.

The symptoms are a swelling in the groin or scrotum resisting the impression of the fingers : if the hernia be of the intestinal kind, it is generally painful to the touch, and the pain is increased by coughing, sneezing, or standing upright. These are the very first symptoms, and if they are not relieved, are soon followed by others, viz. a sickness at the stomach, a frequent reaching or inclination to vomit, a stoppage of all discharge per anum, attended with a frequent hard pulse, and some degree of fever.

A patient in these circumstances may be looked upon as in some danger, and requiring immediate assistance. A stricture made on the prolapsed part of the gut, by the borders of the natural aperture in the tendon of the oblique muscle, is the immediate cause of these symptoms which nothing can appease or remove, except what will take off that stricture. This can be accomplished only by removing the
part

part so bound from the tendinous opening ; that is, by returning it back into the belly whence it came ; or by dividing a part of the tendon itself : the former of these, when it can be practised, is always most eligible, and makes our present subject.

I have already observed, that a portion of intestine, while it is neither bound by any degree of stricture, nor affected by inflammation, will remain quiet in a hernial sac in the scrotum, and perform its proper office freely and perfectly ; but the instant either of the above-mentioned accidents (particularly the former) happens, the case is altered ; the passage both of the aliment and fæces is stopped or interrupted ; the peristaltic motion of the whole canal is disturbed or perverted ; and the circulation of the blood, through the straitened portion of intestine is so impeded, that if the obstruction is not removed in time, a mortification must follow.

Every symptom which attends an incarcerated rupture depends on this cause, and is justly accountable for from it. The tumor, the pain, the tension of the belly, the

the nausea, the vomiting, and the suppression of stools are so many effects produced by it, and removeable only by removing it.

My present consideration being those ruptures which are capable of being returned, I am now to speak of the manner of attempting such reduction.

The patient should be laid in a supine posture, with his trunk certainly as low, if not lower than his thighs; the thigh on the diseased side should be so elevated, as to contribute as much as possible to the relaxation of the abdominal aperture; and then the surgeon grasping the lower part of the tumor gently with his hand in such a manner as to keep the testicle from ascending, and the intestine from descending, must endeavour to procure the return of the latter through the ring, as it is vulgarly called, by gentle continued pressure toward that opening. If the case be a bubo-nocele, there will be no occasion for endeavouring to grasp the tumor, but by continued, moderate pressure on it with the fingers, to endeavour the return of the piece of gut.

This

This may serve for a general description of the method of performing this operation; but the exact manner of executing it is one of those manœuvres which can be learnt only by observation and practice, and of which no verbal description can convey an adequate and perfect idea: knowledge of the structure, and situation of the parts, will instruct any one how to go about it, and a little practice will soon make him adroit.

The posture of the body and the disposition of the lower limbs, may be made very assistant in this operation, when the difficulty is considerable; the nearer the posture approaches to what is commonly called standing on the head, the better, as it causes the whole packet of small intestines to hang, as it were, by the strangulated portion, and may thereby disengage it. A little time and pains spent in this manner will frequently be attended with success, and obtain a return of the part; but if it should not, and the handling of it (which, I must repeat, should always be gentle) becomes painful, and very fatiguing to the patient,

patient, we are advised to desist a few hours, and try the effect of other means.

These means are phlebotomy, glysters, cathartics, the application of cataplasms, fomentations, embrocations, &c.

Children, especially very young ones, bear the loss of blood very ill, and are very apt to swoon, if the quantity be at all considerable: if therefore such accident happens, the surgeon should embrace the opportunity which such general relaxation will afford him of reducing the rupture, especially as it gives him another advantage by preventing the child from crying, and making resistance.

Perhaps there is no disease affecting the human body in which bleeding is found more eminently and immediately serviceable than in this, and which therefore, if there are no particular circumstances in the constitution prohibiting it, ought never to be omitted; but, on the contrary, should be freely and largely repeated, if it appears at all necessary.

A semicupium, or warm bath, will, by the general relaxation which it necessarily produces, be found frequently serviceable.

The

The use of warm fomentations, soft cataplasms, and relaxing oily embrocations, are also advised with a view to relax the tendon of the abdominal muscle, and to render the return of the parts contained in the hernial sac easy ; but I am afraid that such kind of applications have in general been the occasion of much more mischief than good. The effect of them can hardly reach beyond the skin and membrana cellularis, and may possibly, by relaxing them, take off some small part of the pain which arises from their distention, but will seldom have any effect on the immediate seat of the disease, the tendon of the oblique muscle ; the enlargement or relaxation of which only can be of material service.

I know that in this I differ from the majority both of writers and practitioners, but having (as I think) truth on my side, I do again venture to say; that I verily believe, that the confidence which has been placed in such kind of applications has destroyed many more lives than it has saved. A hernia, with painful stricture, and stoppage of stools, is one of those cases, in which we
can

can seldom stand still, even for a short space of time; if we do not get forward, we generally go backward; and whatever does no good, if it be at all depended upon, certainly does harm, by occasioning an irretrievable loss of time: of this kind I take the cataplasm and embrocation * to be; while the former is applied, or the latter used, no other more powerful means are made use of; and though it has the appearance of doing something, yet I fear it is little more than specious trifling; especially if the case be at all pressing.

Very different have been the opinions of different people concerning the use of cathartic medicines; some advising them strenuously, others placing no dependence on them at all. As different also have been the opinions of those who do advise them, with regard to the kind of medicine proper on this occasion; some prescribing those of

* In a very pompous modern book may be seen an operose, expensive process, for making an ointment, of a solution of gold, pearl, &c. to be used for assisting the reduction of strangulated intestines, and which, when properly made, may possibly be as useful as pomatum, ointment of elder, or any other greasy application.

the lenient kind, such as Glauber's salt, infusum fenæ, &c. others the more powerful or ponderous kind of remedies, such as Extract. Cathart. Jallap, Mercurius dulcis,* &c.

I believe I may venture to say that I have tried them all, but I cannot say that I have such faith in any of them as to think very highly of them. With regard to the former, viz. the lenient sort of purges, it is not often that a patient in these circumstances can keep them upon his stomach; and even when they are not rejected by vomit, they very seldom have force sufficient to answer the end proposed. The more stimulating ones are certainly better calculated to excite the peristaltic motion of the intestines, (the one thing to be aimed at) and thereby free the confined piece; but, on the other hand, if they do not succeed, they add to the fulness

* The ingenious and learned Dr. Monro of Edinburgh, says, that he has more than once reduced a rupture of this kind by a smart dose of jallap and mercurius dulcis, when other methods have failed. The same gentleman says, he has seen the external application of cold claret, or snow, instead of a warm poultice, used with good success.

and

and tension of the belly, as well as to the heat and thirst.

I would by no means be understood to mean that I am absolutely against the use of cathartic medicines; I only mean to signify, that I have no great dependence on them, and that I think persisting in the ineffectual use of them often adds unnecessarily to the suffering of the patient.

But though I cannot say that I have seen frequent benefit from the exhibition of cathartics by the mouth, yet I have often experienced the good arising from acrid, stimulating glysters, and suppositories frequently repeated; particularly from the smoke of tobacco,* and from a composition of salt, honey, and aloes, boiled to the proper consistence of a suppository. By these I have seen very alarming ruptures returned, when they have been thought capable of being

* I cannot help thinking that the present machine, which is used for the tobacco glyster, might be considerably improved, that is, might be made to throw in the fume in much greater quantity, and with more certainty. A pump is now made for this purpose, which I have used very successfully.

relieved by nothing but the chirurgical operation.

There is another method of endeavouring to obtain relief in this case, which has been proposed by few, and I hope practised by fewer (though I have seen two patients, upon whom it had been tried, and who were both destroyed by it): it is the making several punctures with a round needle through the tumid scrotum into the gut, in order (as it is said) to let out the air which is supposed to distend the latter, and prevent its return. If this practice was worth a serious refutation, many arguments, drawn from the nature both of the parts and of the disease, might be produced against it; but it is really too absurd to waste either my own or the reader's time about it.

There is no circumstance attending ruptures with stricture, in which more variety is found, than in the time which they will safely admit to be spent in their reduction; some have been successfully replaced at the end of eight or ten days, others have proved fatal in one. This difference may
proceed

proceed from difference of constitution and habit, or from some particular circumstance in the disease itself; but let the cause of it be what it may, as it never can be absolutely foreseen, it should never be trusted: the sooner a rupture is reduced, the sooner the patient is out of danger from the stricture, and the sooner will he be rid of those symptoms, which it has already occasioned.

Recent hernias are in general more liable to stricture than old ones, for reasons which are obvious from what has already been said; but when old ones get into the same circumstances, the symptoms are much the same; though I think in general they are not altogether so pressing, and the latter generally admit of more time to attempt reduction in. The smaller the portion of intestine is which is engaged, the greater the pain is, and the more hastily do the symptoms advance. I have seen a bubonocoele in a young woman prove fatal in less than a day, which had never been down before, and in which the portion of in-

testine was so small, as hardly to engage its whole canal.

Omental ruptures in general are not subject to bad symptoms arising from stricture, though they will sometimes be painful and troublesome, from the connection of the caul with the viscera, as I have often seen. As this is an accident which they are all liable to, they should never be suffered to remain down, if they are reducible; and that not only on this account, but also because they render the patient always liable to the descent of a piece of gut. In general they are more easy of reduction than the intestinal, and being not painful will admit of more free handling, as well as more time to be spent in the attempt.*

I have already mentioned the reasons why an omental rupture is sometimes incapable of being reduced, viz. adhesion to the sides of the hernial sac, or such an alteration in the form of it, as makes it im-

* Writers of good credit have given accounts of the worst symptoms from a mere epiplocele; in Dionis may be seen a case of this kind, in Garengot, and others.

possible

possible for it to pass through the abdominal aperture. When this is truly the case, as is most reasonable to suppose when it resists all proper attempts, there is no remedy but to suspend the weight of it in a bag-truss, and thereby render it as little troublesome as possible. This is indeed all that can be done when the rupture is absolutely irreducible; but in books will be found directions to leave an old omental hernia down, and suspend it in a bag, even though it should be reducible, rather than return it into the belly, lest it should lie there in a lump, and make the patient uneasy. This is one of those maxims which writers receive from each other, and deliver down to posterity, without enquiring into their propriety. It may in some few particular cases be right to do so, but cannot be admitted as a general rule: surely it must always be worth while to try how it will be when it is up, rather than be content with a method, which is hardly palliative, and which always may be productive of new evil.

When the parts are fairly reduced, the next consideration is, how to keep them

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from

from falling down again : this can only be done by a bandage, the pad of which must make a constant pressure against the opening in the abdominal tendon, and thereby not only keep the gut or caul from pushing out, but make the sides of the hernial sac approach each other as near as possible.

In the making and adjusting this kind of bandage, some ingenuity is necessary : if it be not so made, and so put on, as to do good, it will do harm : if it does not keep the intestine up, the patient is much more liable to mischief with it than without it ; and it has often, by pressing on the rupture while down, proved very pernicious, in cases where there has been no degree of stricture from the tendon. It therefore behoves every surgeon to see that the truss which he orders is well made, and properly applied, lest all his pains should be baffled by the bad make, or injudicious application of this piece of machinery.

If the symptoms of pain, inflammation, &c. ran high before the parts were reduced, they will not always cease immediately

ately after; and as the symptoms which remain after the gut is returned, do in all probability proceed from its having been inflamed by the stricture, such remedies as are proper in that case ought to be made use of; the body should be kept open, and the diet and regimen should be low and sparing, while the least degree of tension or pain remain; in short, till all complaint is absolutely removed from the abdomen, and the intestines do their office freely, and without trouble.

S E C T. V.

I AM now come to the fourth division, under which I comprehended all those ruptures, which are in such a state as to be irreducible by the mere hand, and in which a chirurgical operation is necessary for the preservation of the life of the patient.

Impracticability of reduction may be owing to many causes, most of which have already been recited; such are, alteration of the form of the parts contained in the
hernial

hernial sac, largeness of their quantity, adhesions either to the sac, or to each other, or both, and a stricture made on the intestine, by the borders of the aperture in the abdominal tendon : these are each of them causes why ruptures are sometimes incapable of being returned back into the belly, and will require our consideration in their proper places ; but in this it is my intention to speak only of the last, it being that which calls most immediately for relief, which most frequently requires the surgeon's knife.

Whether the primary and original cause of the mischief arising from this stricture, is in the contained, or in the containing parts of a rupture, I will not now stay to enquire ; nor whether the stricture made by the tendon be a cause, or an effect ; but shall consider the intestine as so engaged in it, as to be rendered incapable of being returned into the cavity of the belly (by the hand only,) and suffering in such manner, by being so bound, as to produce a series of bad symptoms, and at last, (if not relieved) death.

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This stricture, which according to its different degrees renders the reduction of an intestinal hernia either difficult or impossible, is according to such degrees productive of what are called the symptoms of a strangulated rupture, and which are more or less pressing, as they more or less interest the life of the patient.

The earliest of these symptoms were related in the former section, as attendant on those ruptures which were reducible, though with difficulty, viz. tumor in the groin or scrotum, attended with pain, not only in the part, but all over the belly, and creating a sickness and inclination to vomit, suppression of stools, and some degree of fever: these are the first symptoms, and if they are not appeased by the return of the intestine, that is, if the attempts made for this purpose do not succeed, they are soon exasperated; the sickness becomes more troublesome, the vomiting more frequent, the pain more intense, the tension of the belly greater, the fever higher, and a general restlessness comes on, which is very terrible to bear. When this is the
state

state of the patient, no time is to be lost ; a very little delay is now of the utmost consequence, and if the one single remedy which the disease is now capable of be not administered immediately, it will generally baffle every other attempt. This remedy is the operation, whereby the parts engaged in the stricture may be set free. If this be not now performed, the vomiting is soon exchanged for a convulsive hiccough, and a frequent gulping up of bilious matter ; the tension of the belly, the restlessness and fever having been considerably increased for a few hours, the patient suddenly becomes perfectly easy, the belly subsides, the pulse from having been hard, full, and frequent, becomes low, languid, and generally interrupted ; and the skin, especially that of the limbs, cold and moist ; the eyes have now a languor and a glassiness, a lack-lustre not easy to be described ; the tumor of the part disappears, and the skin covering it sometimes changes its natural colour for a livid hue ; but whether it keeps or loses its colour, it has an emphysematous feel, a crepitus to the touch,

touch, which will easily be conceived by all who have attended to it, but is not so easy to convey an idea of by words: this crepitus is the too sure indicator of gangrenous mischief within. In this state, the gut either goes up spontaneously, or is returned with the smallest degree of pressure; a discharge is made by stool, and the patient is generally much pleased at the ease he finds; but this pleasure is of short duration, for the hiccough and the cold sweats continuing and increasing, with the addition of spasmodic rigors and subsultus tendinum, the tragedy soon finishes.

These are the symptoms of an *incarcerated hernia*, this their general progress, and their too frequent event. The first class of them imply some degree of hazard, but are often capable of being relieved without the use of the knife; the latter frequently require it, and very often prove fatal by the neglect, or too late application of it.

Perhaps there is not in the practice of surgery a point which requires more judgment, firmness, or delicacy, than to determine
mine

mine the precise time, beyond which this operation should not be deferred, and for a surgeon to conduct himself so as to induce a patient to submit to it early enough for his preservation. The time in which a piece of gut will become gangrenous from stricture, or get into a state approaching to that of a gangrene, is extremely uncertain, and depends on circumstances which no man can foresee. There have been several instances of ruptures, attended by pressing symptoms of stricture, which have been safely returned by the hand only, at the end of several days; or the operation having been performed at the same distance of time, the parts have been found sound or unhurt: on the other hand, there are many instances producible, of the intestine having been with great difficulty replaced, or of its returning, *suâ sponte*, from being mortified, or (the operation having been submitted to) of its having been found in such state by the operator, at the end of not many hours.

I have myself seen a small portion of the intestine become perfectly gangrenous, in one day and night from its first expulsion.

The

The directions which are given to us by writers, are not to be trusted without much circumspection; the signs or marks which they in general regard as proofs of the proper time for operating, are most frequently proofs that the time is just elapsed, and that instead of waiting for the arrival of such symptoms, we should have prevented them. On the other hand, to propose an operation of so much consequence, before it shall be thought absolutely necessary, may admit of such misconstruction, as no man would wish to have put upon his conduct. Indeed I do not know any situation, into which a judicious and prudent man can be put, in which it will behove him to be more wary and circumspect, more delicate, or more steady.

The two principal circumstances, which have most contributed to the infrequency of performing this operation, are, a dread of great hazard from the operation itself, considered abstractedly, and a fear of bringing a disgrace upon it, by having performed it too late, *ne occidisse, nisi servasset, videretur.**

* Celsus.

The first of these is vastly greater than it ought to be, and is most frequently the cause of the latter; so that if the one can justly be lessened, the other will not be so likely to happen.

That the operation considered simply is not void of hazard, every man who knows any thing of the nature of wounds in membranous and tendinous parts, must acknowledge; they are certainly subject to fever and inflammation, are difficult and slow of digestion, and in some particular habits are apt to become gangrenous; but that they are necessarily, or even most frequently hazardous, daily and manifold experience contradicts.

One evil is very frequently the parent of others. By being afraid of incurring that degree of hazard which is thought to attend the operation merely, the generality of people neither attend to, nor embrace the most proper time for the safe performance of it; or that in which its danger must be necessarily least, because least combined with that which may arise from the state of the parts within; a state even at first not absolutely
safe,

safe, but which all delay beyond a certain time must hourly increase the hazard of.

If I might presume to give my opinion on this subject, I should say, that the operation ought always to be performed as soon as possible after it appears that all rational attempts, by large and free bleeding, the warm bath, glysters, &c. are found to be ineffectual, or that the symptoms rather increase than decrease, while such means are made use of, and that the * handling necessary

* Perhaps I may be thought somewhat singular, but from what I have seen I am much inclined to believe, that when the parts are very painful to the touch, and the scrotum large, and much upon the stress, more harm is generally done by the manual attempts for reduction, than good. In this state, the great distention of the intestine renders it very incompressible, and very little likely to be returned through the tendinous aperture by mere force, (for such it is, in whatever degree it be used) and either a brisk irritating purge, or a very stimulating glyster, (particularly the tobacco-smoke) are more likely, by exciting the peristaltic motion, to disentangle it, than even the most judicious method of handling it. And in cases where such remedies have been previously used, I verily believe the sudden reduction of the piece of gut is often more owing to their effect than to that of the hand. But I must desire that this may be rightly understood, and not mistaken for a dissuasive against manual attempts for

necessary for reduction becomes more and more painful ; for if it be delayed until the inflammation has attained a certain height, though the parts upon being laid open are not found quite gangrenous, that is no proof that the want of success must be set to the account of the operation merely. That state of inflammation, either of the intestine or of the hernial sac, which is just not gangrenous, is no state of safety, nor are we sure that removing the stricture will at this time appease the symptoms, or abate the hazard :—far from it : such an alteration may have already been made in the intestine that a mortification will ensue, though it be set free and returned into the belly. A ligature need not be continued round any part of a living animal, until it becomes quite gangrenous, in order to produce its destruction. There is a certain point of time, in which the cir-

reduction ; I only mean, that there is such a state of an incarcerated intestine, (which state I have just described) in which, from its size, inflammation, distention, &c, compression by the hand is very little likely to procure its return, and very likely, if it does not do so, to do considerable mischief.

culation

culatation is so prevented, that the same event will follow, though the ligature be then removed. It is indeed a nice and no very easy matter to find this precise time; but this difficulty and uncertainty are the strongest reasons for anticipating rather than waiting for it; for when in the present case such time arrives, or is nearly arrived, the risque of the operation becomes complicated with that arising from the diseased state of the parts within, and the chance of success is thereby much lessened.

A mortification of the intestine is not absolutely, necessarily, and always fatal; but the instances of those patients who have escaped with life in these circumstances are so very few, that it may fairly be reckoned among the deadly diseases. If the mortified gut returns back into the belly, upon the gangrene taking possession of the part which was bound, it will most probably prove fatal; and though there have undoubtedly been instances of people who have survived the operation, though it has been delayed till the parts have been

in such condition, yet they are so very rare, that they are hardly sufficient to found a reasonable expectation upon; and of the very few who have thus escaped, the majority have been obliged to hold life upon terms which have been very fatiguing and disagreeable.

When the operation shall be thought necessary, the manner of performing it is as follows :

The pubes and groin having been clean shaved, the patient must be laid on his back, on a table of convenient height, with his legs hanging easily over the end of it, then with a strait dissecting knife, an incision must be made through the skin and membrana adiposa, beginning just above the place where the intestine passes out from the belly, and continuing it quite down to the lower part of the scrotum. Upon dividing the adipose membrane, there generally appear a few small, distinct, tendinous kind of bands, which lie close upon the hernial sac, which must be divided also, as well as the sac: the same knife with which the incision through
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the skin was made will execute this, which should be done with a steady hand and great caution, it being of very different degrees of thickness in different cases : in the bubonocoele, or that which is confined to the groin, the sac is most frequently thin, consequently more easily divided, and requires greater attention in the operator : in the oscheocoele, or scrotal hernia, if it be recent, the sac is usually thin also ; if ancient, it is sometimes of considerable thickness, but whatever be the state of it, if the operator has any doubt, let him, as soon as he has made a small puncture in what appears to him to be the hernial sac, endeavour to introduce a probe into it ; this will give him the necessary satisfaction ; for if he has not pierced the sac, the probe will be stopped by the cells of the common membrane, and, if he has, it will pass in without any obstruction. The place to make the incision in the hernial sac is about an inch and half below the stricture, and the opening need not be larger than just to admit the end of the operator's fore-finger, which, considering

the great dilatability of these membranes, will be a very small one ; the fore-finger introduced into this aperture, is the best of all directors, and upon that a narrow-bladed, curved knife, with a bold probe point, will be the only instrument necessary to finish the operation. With this knife on the finger, (the point of the former being always short of the extremity of the latter) the sac must be divided quite up to the opening in the tendon, and down to the bottom of the scrotum.

Upon the first division of the sac, a fluid generally rushes out, which fluid is different in quantity, colour, and consistence, according to the date, size, and some other circumstances attending the rupture.

This fluid has sometimes been mentioned as a defence against an accident from the knife, in the first division of the hernial sac, as if it kept the intestine at such a distance, as thereby to lessen the hazard of its being wounded ; but this is a very fallacious circumstance, and never to be trusted ; the security of this operation depends entirely on a competent knowledge of
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of the parts, a steady hand, and an attentive eye.

Different operators, especially among the French, have proposed a number of different instruments for the safe performance of this incision ; the bistouri cachée, the bistouri herniare, the winged director, the blunt scissars, &c. &c. &c. all which are calculated for the defence and preservation of the intestine, in the division of the sac and tendon ; but whoever will make use of the two knives just mentioned will find, that he will never stand in need of any other instrument, and that he will with them be able to perform the operation with more ease to himself, with less hazard to his patient, and with more * apparent dexterity, than with any other whatever.

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* They who are not accustomed to perform operations of such consequence as this is, are apt, from timidity, to be too sparing in making their external incision, by which means they add considerably to their own embarrassment, and to the fatigue of the patient. A free division of the hernial sac and scrotum, downwards, gives room for the more easy admission of the finger into the stricture, in order to divide it, and affords an opportunity of handling the intestine or omentum more gently, as well as more properly,

The sac being laid open, the intestine generally pushes out immediately, (unless it is confined, by being enveloped in the omentum) and appears to be much more in quantity than it seemed to be, while it was confined within the scrotum.

This is the time to try whether by gently drawing out a little more of the gut, its bulk cannot be so reduced as to enable the surgeon to return it back into the belly, without dividing the tendon. In the case of the protrusion of a very small piece of intestine it has been found practi-

in order to return them into the belly, both which necessary parts of the operation are much impeded by a small incision.

As therefore no possible advantage can arise from a small wound, but on the contrary it may be attended with great inconvenience both to the patient and surgeon; I would take the liberty of advising, when such an opening is made in the hernial sac as will admit the operator's fore-finger, and upon it his knife, that he immediately divide the sac and scrotum down to the bottom. It is true, that upon such division the quantity of intestine will seem to be increased, and an ignorant by-stander may be alarmed at this fallacious appearance, which is produced merely by the confined compressed gut being set free, and not by the addition of any more. The advantage which will arise to the operator, and consequently to the patient, from such division, is real and great, it will enable the former to finish his work with freedom, and spare the latter a great deal of pain.

cable,

cable, the difficulty of returning a large portion arising principally from the quantity of mesentery engaged in the stricture; and, indeed, though it may now and then happen that a small piece of gut may be returnable without a division of the tendon, yet if it cannot be very easily accomplished, it had better not be attempted, since in the state in which this part must necessarily be to require the operation thus far, any degree of force used to it will, most probably, be more prejudicial and hazardous than the rest of it, if performed properly with a knife.

An attention to the natural structure, figure, and direction of the parts will give us the best information how to make the division of the stricture to the best purpose, and with the least hazard.

The tendon of the obliquus descendens muscle runs in an oblique direction from above downward, and the natural opening which is always found in it, and through which the hernia passes, is made by a kind of separation of the fibres from each other; the direction of this opening is the same as
that

that of the tendon, that is, obliquely downward, from the os ilion to the os pubis; the knife therefore should be so managed, as rather to continue this separation, than to make any transverse section; its edge should be applied to the superior and posterior part of the oval, and carried upward, and obliquely backward, until a sufficient opening is made to serve the purpose; by this means the fibres of the tendon will be rather separated from each other than cut, and in all probability the risque arising from the incision will be lessened.

It is generally advised to make the division of the stricture free and large, as well to permit the easy return of the parts, as to prevent the inconvenience which it is supposed will be more likely to attend a small wound in a tendinous body than a large one: the first intention, the easy return of the intestine, should certainly be fulfilled, and therefore the incision ought always to be large enough for that purpose; and to afford an opportunity of passing the end of the finger round on the inside, in case of any adhesion; but as too large an opening may
be

be attended with very ill consequence, it ought also to be guarded against. In the majority of cases, a small incision will be found sufficient for the purpose of reduction; and where the parts are free from adhesion, and the safe return of them is the only object of attention, a small division made in the manner already directed is not liable to any more pain and trouble than a large one, and may therefore be safely trusted.

Among the authors who write from each other, and not from practice, are to be found accounts of cases, in which the tendon only has been divided, and not the hernial sac, which latter has been returned through the enlarged opening, with its contents inclosed; and the same writers are very particular in their directions how to accomplish this operation. If it was practicable, (which the universal adhesion of the sac with the cellular membrane of the spermatic chord renders absolutely not so) there would be still several material objections to the doing it; which objections, as the thing is not capable of being executed, it is needless to mention.

Though

Though I am perfectly satisfied that the case of a strangulated hernia is most frequently as I have represented it, viz. that the disorder in the intestine is originally produced by the stricture made on it by the borders of the tendinous opening of the abdominal muscle, and that the gut is in general perfectly sound, and free from disease, before it becomes engaged in such stricture, yet I think it right to acquaint the uninformed reader, that it has been and still is the opinion of some very ingenious men, that the disease is originally in the gut, and that the stricture is an accident arising from the inflammation and distention of it ; or in other words, that the intestine is first inflamed, and by means of the alteration produced by such inflammation, becomes too large for the tendinous aperture, which therefore makes a stricture on it, and which, they think, is the reason why the surgical operation is often unsuccessful.

For my own part I cannot think that either the fact, or the inference is in general true.

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An inflammation most certainly may, and frequently does, attack any part of the intestinal canal, and consequently that part of it which happens to be included within a hernial sac may accidentally be so affected: when this is the case, the swelling and distention which naturally and necessarily attend an inflammation of the gut, will render it less capable or perhaps quite incapable of repassing the opening in the abdominal tendon, which tendon may therefore make such stricture on the part so diseased, as greatly to heighten the first symptoms, and bring on still worse; and, when this happens, the operation will also be less likely to be successful, it being calculated for the relief of only such symptoms as arise from a piece of intestine (in other respects sound and free from disease) being so bound by the said tendon, as to have its peristaltic motion, and the circulation of the blood through it, impeded or stopped; whereas the other complaint, consisting primarily and originally in an inflammation of the gut itself, the mere removal of it from stricture is not, nor can be, equal to the cure

cure of the disease. That the case is a possible one I make no doubt, having once or twice seen it in old ruptures; but it is a very rare one, and by no means to be admitted either as a proof that the mischief done to the intestine, in the generality of strangulated ruptures, does not most frequently proceed from the stricture made by the tendon, or a dissuasive from performing an operation, whenever it would otherwise be thought necessary.

It is not however a mere speculative point, it is really a matter of consequence, and ought to be attended to by all those who have it in their power to make frequent observations on such subjects; for on the truth or falshood of this doctrine depend a few very material points in practice, some of which ought so to influence a surgeon's conduct as to make it considerably different in one case from what it should be in the other.

Very bad symptoms, such as pain, tension of the belly, sickness, vomiting, hic-cough, fever, and suppression of stools, are often produced in a very short space of time by the descent of a piece of gut, upon some
exertion

exertion of strength in persons who were immediately before such accident at perfect ease, and free from all complaints relative to the belly: if the disease be not discovered, or if our attempts to reduce the intestine are not successful, these symptoms are heightened, and the patient often dies of a mortification; if we do succeed in the timely reduction, all these terrible symptoms often cease instantaneously, and the patient feels neither pain nor inconvenience of any kind from that moment. Would this most probably and most frequently happen, if the disease was generally in the intestine, and the stricture of the tendon merely accidental?

In that kind of disease of the intestinal tube, which is said to be produced by inflammation, and thought to be attended with spasmodic stricture, or contraction of its muscular fibres, there is such an alteration made in its peristaltic motion, and such impediment in the execution of its principal offices, that what is taken into the stomach is rejected by vomit, and the fæces are not protruded through the colon and rectum,

rectum, the belly is tight and painful, the skin hot, the pulse quick and hard, and the patient feels a restlessness and anxiety which are very disagreeable: this is one of those cases which require immediate assistance, and will admit of no delay; the progress of the symptoms from bad to worse is generally very rapid, and if the disease be not soon subdued, the patient dies. Free and repeated evacuation by phlebotomy and lenient purges, the use of a semicupium, a warm bath, glysters, and sometimes brisk cathartics, joined with opium, are the remedies generally prescribed, and if made use of in time are often successful, but if neglected, the case most frequently ends ill.

It is very true that the same symptoms occur in a strangulated hernia; but if that hernia be reducible, they generally cease upon such reduction, nor does the patient want any other assistance than what is necessary to prevent a new descent of the gut: in this respect therefore the two cases differ very materially; in the latter, nature stands in need of no farther assistance from art, but as soon as the manual operation is performed,
returns

returns to the execution of her natural functions ; in the former, she is found so very insufficient toward assisting herself, that it seems to be one of the few cases, in which medical assistance can hardly ever be dispensed with.

Now if the bad symptoms attending an irreduced rupture were primarily owing to an inflammation of the intestine within it, and that the tendinous aperture made a stricture on it, only in consequence of the distention of the gut ; allowing this stricture to aggravate the complaint considerably, yet the division of it, or the reduction of the intestine, can never be supposed to do more than alleviate or remove such aggravation ; the original inflammation of the gut must still remain, nor can it be supposed to be lessened by the intestine having been girt tight by the tendon ; and yet, as I have just now observed, we very rarely (at least in ruptures that are not of ancient date) meet with any trouble or complaint after reduction is timely and compleatly made, and the intestine returned into the belly in a sound state ; the

vomiting most frequently ceases immediately, or in a very short space of time, a discharge is made by stool, the tension of the belly goes off, and though the patient is not always instantaneously well, in cases where the symptoms have been very threatening, yet all such complaints as proceeded from an obstruction to the execution of the proper offices of the intestinal canal, generally disappear immediately.

From the nature and progress of the symptoms in a *miserere* (as it is called,) from the extreme pain of the first attack, from the perfect ease a little while before death, and from the mortified appearance of the intestines after such event, I think it is most probable, that if we could have an opportunity of seeing the intestine during the first part of this complaint, we should find all the appearances of inflammation; whereas in many of those upon whom the operation for the bubonocoele is successfully and timely performed, this is not the case; the intestine seldom bears marks of high inflammation, unless the operation

operation has been long delayed, nor do the symptoms of such complaint usually attend afterward; the mortified part often does not exceed an inch, or an inch and half in length, and is almost always confined to that part of the gut which is on the outside of the tendinous opening, all within the belly being found and fair. To which may be added this circumstance, that when the parts contained in a hernial sac become mortified by the delay of the operation, the sac itself, (which has no immediate connection with the intestine, or its vessels) the cellular membrane covering it, nay the skin is often found in the same state.

These are my principal reasons for believing that the mere stricture made by the tendon is, in the generality of incarcerated ruptures, not only a sufficient, but the primary, and indeed the sole cause of all the symptoms, and all the mischief; and therefore I must also be of opinion, that whoever neglects to perform, or at least to propose the operation, when he finds reduction impracticable, and the symptoms

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pressing, does in some measure contribute to the destruction of his patient.*

On the other hand, I am convinced by some instances which I have met with, (and which one time or other I hope to be able to present to the public, in a collection with many others) that the opinion has some foundation in truth, and that persons labouring under old ruptures, which have been long in the scrotum without giving any trouble, in which the quantity of intestine is often very large, the tendinous aperture much dilated, and the hernial sac thick and firm, are those to whom

* Indeed, though we should suppose the case to be as those gentlemen have represented it, viz. that the complaint begins in the intestine, and that the stricture made by the tendon is not a primary cause, but an effect of the disease, I do not see how we can avoid proposing the operation; for whether the increased size of the gut be owing to the inflammation, which renders it too large to pass the abdominal opening, or whether it be the mere effect of stricture made by the tendon, in either case it will bind equally, and the event must be exactly the same, as far at least as the stricture has to do with it: for when the intestine is inflamed, whether such inflammation preceded or succeeded the confinement of it by the tendinous opening, the symptoms can never be appeased, but by the release of the gut from its confinement.

whom this misfortune has happened, and who indeed, if their case be duly considered, will be found most liable to it; there being no reason in nature why that part of the intestine which is contained in such a hernia, should not be subject to every complaint, or disease, to which every other part of that canal is liable: and this opinion I am more confirmed in, by having met with more than one subject with such old ruptures, who have had all the symptoms of a strangulation, and in whom, I am sure, there was no stricture made by the tendon, though the gut remained in the scrotum.

Although I have through the course of this section repeatedly recommended the early performance of the operation, yet I must desire not to be misunderstood, as if I meant to advise it before proper attempts had been made for reduction, or the symptoms become alarming; much less that I would propose it as a means to obtain a radical cure in those ruptures which are returnable by the hand merely; a thing boasted of, and practised by pretenders,

but not to be thought of by any man who has either judgment, humanity, or honesty.

The only intent of it should be to preserve life, by rescuing the patient from the hazard of mortification, likely to ensue from the stricture; and though I have pressed it with such view, and in such circumstances, and think it ought always to be done, yet I should be very sorry to have it thought that I encouraged the performance of it wantonly, or unnecessarily, which must be the case, whenever it is done with any other intention.

Considered as a means to obtain a perfect or radical cure, or to prevent the necessity of wearing a truss, every man at all conversant with these things knows, that it most frequently fails of procuring that end, and that most of those people who have been obliged to submit to it for the preservation of their lives, have also been obliged to wear a bandage ever afterwards, to prevent the intestine from slipping down behind the cicatrix into the groin.

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In short, though the danger from the operation, when performed in time, is in my opinion never to be mentioned with that which must arise from the stricture, if neglected, yet such operation never ought to be attempted but with a view to prevent the impending ill effects of such stricture, and will not ever (I dare believe) be put in practice with any other intention, by any fair or judicious practitioner, by any man who has the least regard for his own character, his fellow-creature's sensations, or for any thing but money.*

THE sac and stricture being laid open and divided, the contained parts come into view, and according to the different cir-

* Perhaps it may appear extraordinary, but this necessarily severe operation has, by some of our modern quacks, been recommended, and even practised, for the cure of omental hernias: more than one person has lost his life, that is, has been murdered in the attempt; but that seems to be a circumstance of small importance in the minds of these operators, nor does it at all prevent the credulous part of mankind from trusting them; though one would imagine that much stronger proofs, either of the judgment, humanity, or honesty of such practitioners were not requisite.

cumstances of the rupture and of the patient, will be found in different states, and require different treatment.

These states are reducible to three general heads, that is, the contained parts will be found, either in a sound, healthy, loose, unconnected state, and fit for immediate reduction; or in a sound state, but, from some particular circumstances, incapable of being immediately replaced; or in an unsound, diseased state, and requiring to be treated accordingly.

If the rupture consists of a piece of intestine only, and that neither mortified nor adherent, the sooner it is returned the better, and the more gently it is handled for reduction, the better also.

If the intestine be accompanied with a portion of omentum, the latter, (if in a proper state) should be returned first.

In returning the intestine, care should be taken to endeavour to put in that part first which came out last, otherwise the gut will be doubled on itself, and the difficulty and trouble be thereby much increased; and in making

making the reduction, the fingers should be applied to that part of the intestine which is connected with the mesentery, rather than its convex part, as it will both serve the purpose better, and be less likely to do mischief.

While the reduction is making, the leg and thigh on the ruptured side should be kept elevated, as such position of the limb will much facilitate the return of the parts.

Long confinement in the scrotum will, in some people, produce slight adhesions, by slender filaments, which are generally very easily separated by the finger, or divided by a knife, or scissars, whether the adhesions be of the parts of the intestine *inter se*, or to the hernial sac. If the adhesion be of the former kind, and such as proves very difficult to separate, it will be better to return the gut into the belly as it is, than to run the risque of producing an inflammation by using force; if it be of the latter, that is, if the connection be with the sac, there can be no hazard in wounding that, and therefore it may be made free with.

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It has been said by some writers, that if the piece of omentum be so very adherent that the surgeon does not chuse to separate it, that it may very safely be left, that it will first suppurate and then shrink, and very little retard the healing of the fore. What experience the gentlemen who talk in this manner may have had of this kind of case, I know not; but I never yet have seen any, in which it could possibly be thought necessary to leave the patient in such circumstances, or in which an attachment of the omentum was incapable of being set free, either by dissecting its adhesions, or retrenching a part of it.

The prolapsed part being replaced, the next object of consideration is the hernial sac: this, if large, thick, and hard, will prove slow, and difficult of digestion, render the edges of the fore tumid and painful, and often retard a cure considerably, by producing troublesome abscesses in the scrotum.

A considerable part of it may very safely and properly be removed; no part of it is
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of any consequence except the posterior, or that with which the spermatic vessels are connected; all the rest being loose, by means of the cellular membrane, is therefore very easily separable, and had therefore better be removed than left.

It has been proposed by theoretic writers to pass a ligature round the upper part of the neck of the sac, in order as it is said to procure the union of its sides, and thereby more certainly to prevent the future descent of any thing from the belly: but to this there are many objections; the principal of which are, that if the ligature was not made strict, it could serve no purpose; and if it was, it would be very likely to injure the spermatic chord, if included in it; by preventing part of the discharge, it might also occasion very troublesome symptoms, and, upon the whole, is by no means advisable,

It has also been supposed, that the intestine may be found so inherent as not to admit of being set free; and in this case it has been advised to remove the stricture, by dividing the sac and the tendon, and
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then to leave the parts loose. This is mentioned by many writers of eminence, and therefore I have taken notice of it, though it is a kind of case which, I must own, I have never seen, nor do I suppose that I ever shall. I have seen the intestines very firmly adherent to each other, to the sac, to the omentum, and to the testicle; but never in such a state of adhesion, as to be incapable of being returned. The adhesion of the parts of the intestine *inter se*, are most frequently easily separated; but if they should not, still these are no hindrance to the gut being returned; and if the caul be so connected as to prove troublesome to detach, it may with great safety be cut off; so that the connection here meant must be of the intestine with the hernial sac: of these two parts we are interested only for the preservation of one, and may without hazard make free with the other; the separation may indeed be tedious, and sometimes difficult, but let the difficulty or trouble be what they may, the separation must be accomplished, it being absurd to think of leaving a piece of intestine

intestine loose, in the divided scrotum, which, from the removal of the stricture above, will be liable to be increased in quantity, from every unguarded motion, and subject to all the inconveniencies which the influence of the air must necessarily produce on such tender parts; not to mention the great difficulty of managing the fore in this state, and the pain and other bad symptoms, which must arise from the daily uncovering the intestine. Any trouble, therefore, which may attend the separation, must be submitted to, rather than to follow this strange advice, which indeed the writers who give seem not to understand; for to leave the parts as they were found, and as they direct, is impossible; they were found contained in a hernial sac, and in the scrotum, defended from the air, and in some degree limited as to quantity, both by the stricture above, and the sac below; the necessary operation has removed that stricture, divided the sac and scrotum, and set all loose and free, and therefore if the intestine be not returned into the belly, and kept there, the quantity which may fall out,

out, may be so large as to produce the most fatal consequences, notwithstanding any attachments which some part of the canal may have contracted.

S E C T. VI.

HITHERTO the parts composing a rupture have been considered as displaced, as inflamed, as having contracted unnatural connections and adhesions, but being still so unhurt in their texture as to remain sound, within the laws of the circulation, fit to be returned into the belly, and affording a reasonable prospect of success in the event.

But, on the other hand, if the inflammation ran very high, and has either been neglected, or not given way to proper treatment, and the operation has been too long deferred, the parts, though loose, may become so diseased, as to be unfit for immediate reduction.

The disease here meant is gangrene, or mortification, produced by the stoppage of
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the circulation of the blood through the part which is on the outside of the stricture. The gangrenous or mortified state of these parts may be of more or less extent, according to the quantity contained in the sac; but be the extent of such disease what it may, the part so affected ought never to be returned loose into the belly, (more especially if it be intestine) without some caution.

The omentum indeed may be made more free with. If this be so altered as to be plainly unfit for immediate reduction, it may be removed; that is, the altered part may be cut off from the sound.

This is certainly true; but it is a point of practice which appears to me to deserve somewhat more regard than is most commonly paid to it by writers. All that is generally said of it is, that if the omentum be found in an unsound state, a ligature should be made on it just above the altered part, what is below such ligature should be cut off, and the ligature should be left hanging out of the wound, that it
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may more easily be taken away, when it is cast off. This is the general doctrine, and indeed the general practice; but which I cannot help thinking is delivered down, and followed by us, somewhat inconsiderately.

When the omentum is in such state as to be fit for being returned into the belly, such return ought never to be neglected, or omitted; the uses of the caul are great and obvious, and the want of it must be productive of inconvenience to the patient; its warmth, its greasiness, its lubricity, its extension over the surface of the intestines, together with the constant motion of that canal, prove its utility, and in some measure point out what the inconveniencies must necessarily be, which follow the removal of it. But it is sometimes found in such state, as to be unfit for reduction; and then we must embrace the lesser of the two evils, and remove such part of it as we ought not to return. This is said by every body, and is certainly true; but seems to me, as I have just now observed, to require more consideration than is generally

nerally spent upon it, as well with regard to the state requiring such operation, as the manner of executing it. It is commonly said, that if it be found in large quantity, considerably hardened, or if it be altered in its texture, (that is, by gangrene or mortification) that it ought to be retrenched. The two states said to require this retrenchment are very materially different from each other: the necessity of it in the latter is evident; but I cannot help saying, that I think it is ordered in the former very unnecessarily; and that the general method also of performing it in the latter, appears to me to be both injudicious and prejudicial. There may possibly now and then occur a case, in which such alteration may have been made in the mere form and consistence of the prolapsed piece, by induration, enlargement, &c. that the removal of a part of it may become necessary; but this, though it does happen sometimes, is very unfit to be made a general rule of. The reason given, is, that it will lie uneasy in a hard lump within the patient's belly; which is not necessarily or generally true, as I

have feveral times experienced ; having returned it when its form and confistence have been much altered, without finding any future inconvenience : fo that fuch alteration merely, is not a general reafon for cutting it off : on the other hand, I am ready to allow, that it fometimes is, and that the piece of caul fo altered had better be removed, and that it may alfo be fo connected, that it will be more to the patient's advantage to have fuch connected part taken away at once, than go through the pain and fatigue which the feparation may require ; in which cafe, my objection lies principally againft the prefcribed method by ligature. Indeed when it is in a gangrenous ftate, a part of it muft neceffarily be removed, as fuch ftate makes the return of it into the belly highly improper. To accomplifh this, we are ordered to make a ligature on the found part of the omentum, juft above what is altered, and then to cut it off immediately below fuch ligature : and the reafon given for doing it in this manner is, that all the altered part may be removed without any rifque of hæmorrhage. This method

method of acting is founded on a groundless fear, and is often attended with bad consequences, which, not being supposed to flow from this cause, are not set to its account.

The fear of hæmorrhage from the divided vessels, if the omentum be cut in a sound part, and the apprehension of mischief likely to ensue from the shedding of sanies or matter into the belly, if the division be made in the diseased, gave rise to the practice of tying it before amputation; but neither one nor the other of these apprehensions are well grounded, nor are they sufficient reasons for such practice.

The fear of hæmorrhage is almost if not perfectly without foundation, as I have several times experienced; and the discharge of a fluid of whatever kind from the border of the divided membrane, is of no consequence at all; neither would the ligature prevent it if it was, as must appear to every one who will give the subject one moment's serious consideration.

But this is not all: I am sorry to say that I am by experience convinced, that making a ligature on the caul is not only unne-

cessary, but frequently pernicious, and sometimes even fatal.

A mere theoretical consideration of the parts will convince any one of the probability of mischief arising from such practice; but besides these considerations, I can take upon me to say, that I have seen it add to the hazard of the case, and more than once destroy the patient. I have seen the omentum become diseased, and gangrenous in all its extent, above the ligature, between it and the stomach, when it was not gangrenous at all before it was tied; but on the contrary, in a sound state, and only tied in order to its being more securely re-trenched. I have seen a whole train of bad symptoms, such as nausea, vomiting, hiccough, fever, anxiety, restlessness, great pain in the belly, and an incapacity of sitting upright, or even of moving without exquisite pain, precede the death of a man, whose omentum was tied merely because of its enlargement, whose intestines uninterruptedly, from the time of the operation to his last hour, performed their proper office of discharging the fæces, and were found perfect and untainted after death,

death, but whose omentum appeared in a highly inflammatory state in general, and in many parts above the ligature gangrenous.

The direction given by many writers to put the patient's body in motion, or to give him a kind of shake, in order to set to rights the disturbance and derangement produced by tying the caul, would be too absurd to mention, did it not serve to prove, that even the very people who have persisted in this pernicious practice were themselves sensible of some of its probable ill consequences, though they would not try to remedy them: they thought, that those which might follow from hæmorrhage, or the discharge of sanies, were still greater, but made no experiment, in order to know whether they were or not.

I will not pretend to say, that there never was a dangerous or fatal flux of blood, from the division of the omentum, without ligature; but I can truly say that I never saw one; that I have several times cut off portions of it, without tying, and never had trouble from it of any kind, though I have

always made the excision in the sound part ; and that, from the success which has attended it, I shall always continue to do so, whenever it shall become necessary. Upon the whole, I cannot help thinking the ligature both unnecessary and pernicious, and can venture from experience to say, that any portion of the caul, which it may be thought necessary to remove, may very safely be cut off, without any previous tying.

The best and safest method of performing this operation, is with a good pair of straight scissars, having first expanded it, as well on account of its more easy division, as to prevent the mischief which would attend the cutting a piece of intestine, if it should chance to be wrapped up in it ; and if any fear still remains of hæmorrhage, the excision may, in the case of mortification, be made just within the altered part of it ; in which case, there will no more be left to be cast off, than there must be when a ligature is made.

If the gangrene, or sphacelus, have taken possession of the intestine, and consists of a small spot only, which, by casting off, might

might endanger the shedding its contents into the belly, the method of endeavouring to prevent that inconvenience is, by connecting the upper part to the wound by means of a needle and strong ligature; by this means, when the mortified part separates, the fæces are discharged by the wound for some time; after which it has been known to contract gradually, and heal firmly: but whether the event proves so lucky or not, this method of securing the gut should never be omitted.

In making this artificial attachment of the intestine to the inside of the belly, care must be taken not to wound the gut; the needle must be passed through the mesentery, at a small distance from the intestine, and such a portion of that body included within the stitch, as shall be likely to hold fast long enough to render the connection probable. If the altered portion of the gut be of such extent as to require excision, but yet not so large as to prevent the extremities of the divided parts from being brought into contact with each other, their union must be endeavoured by suture; in doing this, the ends of the intestine should be

made to lay somewhat over each other, by which means the future will be the stronger; and when the two ends are thus sewed together, they must both be fastened to the inside of the belly, at the upper part of the wound, that in case the union does not take place, the discharge of fæces may, if possible, be made through the groin. But if the disease is of such extent as to prohibit the bringing the two ends together, the treatment must be different. In this case, as it is impossible to preserve the continuity of the intestinal canal, the aim of the surgeon must be to prevent the contents of it from being shed into the belly, and to derive through the wound in the groin all that which should, in a sound and healthy state, pass off by the rectum and anus.

To accomplish this, he must take care that neither extremity of the divided intestine slip out of his fingers; then with a proper needle, and a strong ligature, he must connect both of them to the upper edge of the wound: the future, with which the connection is made, must not be slight, lest it cast off before a due degree of adhesion is procured;

procured; and it must also be made in such a manner as to preserve the mouth of the gut as free and as open as may be, upon which the patient's small remaining chance does in some measure depend. The method advised by La Peyronie, of stitching the mesentery instead of the intestine, is judicious and right.

The dressing in this case should be as soft and as light as possible, nothing heavy, nothing crammed in, nothing which can irritate or give pain; and the patient must observe the most rigid severity of diet, and the most perfect quietude both of body and mind. With regard to medicine, whatever is exhibited must be calculated to procure rest and ease, to quiet the febrile heat, to keep the body open, and, if necessary, (as it most frequently must be) to resist putrefaction. All the rest must be left to nature, who is by her great Creator furnished with such powers, as sometimes to produce wonderful effects, even in these deplorable cases.

This is the substance of the best practice, and of the most approved doctrine, in these circumstances, and which has sometimes
been

been attended with a fortunate event; but the practitioner who is so situated as to see but little of this kind of business, ought to be apprised how very little reason there is to hope for, or to promise success.

More censure is incurred by an unguarded prognostic, than by a successful event, if properly and judiciously foretold; and if a man was to form his judgment upon this, and some other hazardous disorders, from books only, he would expect very little of that trouble and disappointment, which he will most certainly meet with in practice.

Writers in general are too much inclined to tell their successes only, and are fond of relating cases of gangrene and mortification, in which large portions of intestine have been removed, the proper operations performed with great dexterity, and in which the events proved fortunate; and of this they all give us instances, either from their own practice, or that of others, or perhaps sometimes from imagination; by which the young reader is made too sanguine in his expectation.

That

That these extraordinary successes do sometimes happen, is beyond all doubt, and it is every man's duty to aim at the same by all possible means; but still the inexperienced practitioner should also be informed, how many sink for one that is recovered, and how many lucky circumstances must concur, with all his pains to produce a happy event in these very deplorable cases. Without this caution he will meet with very irksome disappointments, and having been often baffled, where he thought he had good reason to expect success, he will sometimes meet with it so very unexpectedly, that he will be inclined to believe the sarcastical distinction between cures, and escapes, not ill-founded.

To say the truth, the hazard is so great, and the utmost power of art so little, that what Iapis said to Æneas with relation to his cure, may with great propriety be said here.

Non hæc humanis opibus, non arte magistra

Proveniunt; neque te Ænea mea dextera servat:

Major agit Deus.

S E C T.

S E C T. VII.

THE portion of intestine, or omentum, which composed an hernia, being replaced while sound and unhurt either by inflammation or gangrene, it had always till very lately been supposed, that if a new descent of them was prevented by the immediate application of a bandage, no mischief was likely to ensue, and that while the truss executed its office properly, the patient was thereby free from danger.

But within these few years, it has by some of the French writers been said, that the hernial sac may be so loose and unconnected with the spermatic chord, that it may be returned into the belly, while it contains a portion of intestine, labouring under a stricture made by the neck of the said sac; and of this they have given instances of cases,---or of what appeared to them to be so.

Mr. Le Dran tells us, that in one of these, the rupture was with some difficulty returned, but the symptoms nevertheless continuing,

continuing, the patient died; and that upon opening the body he found the hernial sac, including a considerable portion of intestine, returned into the belly; and that the stricture made by the neck of the sac, bound so tight, that he could not disengage the gut from it without cutting it.—His words are,

“ Nous trouvames dans le ventre le sac
“ herniare, qui avoit trois pouces de pro-
“ fondeur, sur huit pouces de circonfe-
“ rence; et dans ce sac etoit encore enfer-
“ mée une demie aulne de l'intestine jeju-
“ num. Tenant le sac à plein main, je
“ voulus en faire sortir l'intestin, en le ti-
“ rant par l'un de bouts; mais la chose me
“ fut impossible, tant l'entrée du sac etoit
“ resserrée, & je n'en vins au bout, qu'en
“ dilatant cette entrée avec les ciseaux,” &c.

In De la Faye's notes on Dionis may also be seen an instance of this kind of case, or at least of what was taken for such.

I have already given my opinion concerning the practicability of returning a hernial sac back into the abdomen, after it
has

has been out any considerable length of time; I never saw, either in the dead or the living, any reason to suppose it possible; the assertions of these gentlemen are very positive, and I must leave the reader to judge of them as he can.

The straitness of the neck of the sac is supposed to be produced by the pressure of the bolster of a truss, worn to keep the parts from descending. This part of the supposition is probable, but it must also be considered, that the same pressure must almost necessarily occasion adhesions of the outside of the sac to the surrounding cellular membrane; and if we were to suppose the sac loose and unconnected in every other part, (a thing I must own I never saw) yet this alone would for ever prevent its return into the belly.

It is indeed represented as a circumstance not very frequently occurring, which is fortunate for mankind; as it can neither be foreseen nor prevented, and would add considerably to the hazard of ruptures.

It is said, that by carefully attending to the manner in which a rupture goes up, we
may

may distinguish whether the sac returns with it or not; that if it does, including the gut, a hard body will be perceived to pass under the finger, and that the intestine in its passage through the abdominal opening, will not make that kind of guggling noise which it is usually found to do, when the sac does not return with it. This, instead of being the characteristic mark of the return of the sac, will almost always be found to be the case when a portion of omentum, which has been much compressed, goes up at the same time with the gut; and therefore, however ingenious this observation may seem, considered theoretically, it is not to be depended upon in practice.

But supposing we had some clear and undoubted marks, by which we could always know when this was the case, I do not see how we could avail ourselves of them: the intestine must be returned before we can have our information; and if instead of the uncertain, delusive reasons just given, we had the clearest and most satisfactory marks of what is suspected, we have no remedy, but a very perplexing, tedious,

tedious, and painful operation, which, I fancy, as few surgeons would in these circumstances chuse to perform, as patients submit to.

I call these marks or symptoms, which these gentlemen have given us, doubtful and delusive, because they do not with any degree of certainty indicate the cause to which they are owing, or from which they arise; for the inflammation excited in the intestine by its having been engaged for some time in a stricture, will sometimes produce all the same complaints after its return; but no chirurgical operation will relieve them.

In the common reduction therefore of an intestinal rupture by the hand, I do not see how we can avail ourselves of this supposed discovery; and when the operation by the knife becomes necessary, it can be of no consequence at all; for if the operation be properly performed, the hernial sac will be divided through its whole length, before the instrument reaches the tendon; and therefore the gut can never be returned, while bound by any stricture from the former.

It

It has indeed been said, that till this discovery was made, the stricture of the abdominal tendon, and the adhesion of the contents of the hernial sac to its sides, were the only known reasons why any rupture should be irreturnable; and that when such case occurred, if the tendon only was divided, and the sac reduced unopened, the patient might be lost notwithstanding all that had been done. To this I can only say, that a stricture made by the sac only, is far from being a thing unknown, and is one of the principal reasons why all judicious writers and practitioners have advised it to be always divided; and when this is properly executed, no such consequences can follow, even if the hernial sac should be (what I have never yet seen) capable of being returned into the belly.

S E C T. VIII.

RUPTURES through the openings of the tendons of the oblique muscles in females, are subject to the same symptoms, and require nearly the same general treatment, as the inguinal ruptures of males,

and, like them, frequently admit of perfect cure, if not mismanaged or neglected at first; the same kind of truss is also necessary, and the same cautions with regard to the manner of wearing it.

The open texture of the cellular membrane surrounding the spermatic vessels, and the laxity of the scrotum, render the hernial tumor much larger in males than it can well be in females; neither can it descend so low in the latter, as it does frequently in the former, for reasons which are obvious.

The female hernia, if recent, has much the same appearance as the bubonocoele in man; and when more of the gut or caul is thrust forth than will lie conveniently in the groin, it pushes down into one of the labia pudendi, and sometimes forms a tumor of pretty considerable size.

When easily reducible, like that of men, it gives but little pain, and generally returns into the belly upon going to bed, or upon the patient, being laid in a supine posture; when it is bound by the opening
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of the abdominal tendon, and is therefore difficult, or incapable of reduction, it is attended with the same symptoms as the incarcerated hernia in man, and requires the same general treatment, of bleeding, glysters, purges, warm bath, &c. and (these failing) the chirurgic operation; by which the hernial sac is laid open, and the stricture made by the tendon, divided.

In males, the cellular membrane which surrounds the spermatic vessels and the hernial sac, is generally so thickened by distention, as to take some little time to cut through, and proves thereby a kind of security to prevent the sac from being too hastily opened; but in females it should be remembered, that the hernial bag lies immediately under the membrana adiposa, and requires to be very cautiously divided, on account of its contents; nor have I in general observed the fluid contained in the hernial sac of females to be equal to that which is found in males.

The piece of intestine which is strangulated in the female bubonocoele, is sometimes

times so small, as to occasion very little tumor, and therefore, if recent, is very often, in modest women, not known to be the cause of the symptoms which it produces; if by accident it returns back before it is hurt in its texture, the disease passes for a colic; if it proves fatal by mortification, it is taken for a *passio iliaca*, or *miserere*. The means made use of for the relief of either of those diseases, being such as will not, in general, without the assistance of a surgeon's hand, procure a return of the protruded gut, many a useful life has been lost by the real cause of the mischief not being known. Every symptom (the tumor excepted) which accompanies a rupture labouring under stricture, may attend a *passio iliaca*; that is, an inflammation and obstruction to the execution of the office of the intestine, whether produced by the stricture of the abdominal tendon, or the spasmodic contraction of its own muscular fibres, will be attended with the same kind of symptoms: but though the general means of relief are alike in both cases,

cases, yet the former requires also the assistance of a surgeon's hand to replace the piece of intestine, or all the rest will be absolutely ineffectual: if that be neglected, the case in general will end ill, and though the mischief is set to another account, and supposed to have been without remedy, yet it is very certain that timely assistance would very frequently prevent such bad consequences. It therefore behoves every medical man, who may be called to women labouring under such complaints, to be very attentive to them, and if the symptoms run high, never to omit enquiring whether there be any tumor in the groin, belly, or pudenda, and if there be such, to be informed of what nature it is, before he goes any farther, or loses any more of that time, which in all these cases is so very precious.

In the case of the dolor colicus, the pain is either round about the navel, or diffused in general all over the belly, that arising from a strangulated rupture is also very frequently general all over the belly, but is always more particularly acute at the

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groin,

groin, which part is also remarkably tender to the touch. The tension of the belly, and the vomiting in the *passio iliaca*, are in general the first, at least they are very early symptoms; whereas they do not come on in ruptures, till after some time is past. Perhaps some other minute distinctions might be made between the apparently similar symptoms of the two diseases; but the best and most infallible way to know what the real state of the case is, and thereby what ought to be done, is to have the parts examined where such tumor may be expected; this removes all doubt, and gives the practitioner the satisfaction of knowing, that, let the consequence be whatever it may, he is pursuing a rational and probable method of relieving his patient.

S E C T. IX.

TH E crural, or femoral hernia, receives its name from its situation, the tumor occasioned by it being in the upper and fore-part of the thigh.

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To understand rightly the nature and situation of a crural rupture, it is necessary to attend to the anatomical structure and disposition of the obliquus descendens muscle of the abdomen. Whoever does this will find, that that part of it which runs obliquely downward from the spine of the os ilion, towards the symphysis of the os pubis, is tucked down, and folded inward, as it were. This edge or border, so folded in, is what is called the *ligamentum Poupartii* by some, by others the *ligamentum Fallopii*, as if it was a distinct and separate body, but is really no more than the inferior border of the tendon of the oblique muscle. In all the space between these two attachments, this tendon is loose and unconnected with any bone; all the hollow, which is made by the form of the os ilion, between the point of the attachment of the ligament or tendon to that bone, and its other connection at the os pubis, is filled up by cellular membrane, fat, and glands; which parts are covered, and braced down, by a fine tendinous expansion, communicating between the ten-

don of the obliquus descendens abdominis and the fascia lata of the thigh.

Under this tendon, or ligament, the parts composing a hernia pass, and produce a tumor on the upper and fore-part of the thigh. The sac is generally described as passing over the crural artery and vein, which are said to lie immediately behind it; but whoever will examine the state of these parts, in a dead subject, will find that this is not a true representation: the descent is made on one side of these vessels, nearer to the os pubis; and the hernial sac, if it be not greatly distended, lies between the crural vessels, and the last mentioned bone, on which it rests.

The femoral hernia is not so subject to stricture as the inguinal, there being a larger space for the intestine to occupy; but when such mischief does happen, the symptoms are so exactly the same as they are in a strangulated inguinal hernia, that it is quite unnecessary to repeat them in this place. The method of attempting reduction, and the treatment of the patient in case of difficulty, are the same also; excepting

excepting that in the inguinal, the part to be reduced should be pressed obliquely toward the os ilion; in the femoral, the pressure ought to be made directly upward, or a little toward the pubes.

When it is not reducible by the hand only, it, like the other, becomes the object of a chirurgic operation, by which the sac is laid open, the stricture removed, and the prolapsed parts returned.

The incision should be made through the skin, and membrana adiposa, the whole length of the tumor; under these will be seen the tendinous fascia, or expansion, and immediately under that the hernial sac: these being carefully divided, and the portion of intestine thereby denuded, it is well worth while to try if it cannot be returned without dividing the tendon, as there is a considerable space between the os ilium and the os pubis, to manage such reduction in, and as the division of the tendon is not always, in this kind of rupture, so safely executed: in this there are two parts of consequence, which lie very little out of the way of the knife, and which an operator

rator should avoid wounding: these are the epigastric artery, and the spermatic chord. If the division of the ligament be made directly upward, the spermatic chord will certainly be divided; and if, to avoid that, the knife be carried very obliquely towards the os ilium, the artery will meet with the same fate; and indeed if the incision of the ligament be made of any length, let it be made in whatever part it may, the risque will be great of wounding one of the parts just mentioned, as will appear to any body who will examine them *in situ naturali*, and make a proper allowance for the pressure, and distention of the hernial sac.

Of the two, the spermatic chord is certainly the most to be regarded, as the total division of it would in all probability render the testicle on that side useless. If the artery be wounded, it must be taken up with a needle and ligature; but the doing is not so easy as the directing it to be done: the epigastric artery in many men is near as large as the smaller carpal; departs immediately from the trunk of the crural, and, at its origin, lies in a bed of fat and cellular

cellular membrane; the stream of blood would be pretty brisk, and the passage of the needle round would certainly be troublesome, if not hazardous from the vicinity of the crural vessels: it may undoubtedly be happily executed, but as it must be attended with a good deal of trouble, and some risque, it is much better to avoid the necessity, which I think may almost always be done, considering the large space between the os ilion and the os pubis, and that that space is occupied principally by cellular membrane, and fat: or if the division of the ligament be unavoidable, let the operator be particularly careful to keep the extremity of the probe-pointed knife within the end of his fore-finger, held up tight just behind the edge or border of the tendon, and to make as small an incision as may be necessary: the probe-scissars, the common instrument in use for this operation, is in this case particularly hazardous and improper.

In all other circumstances, this hernia, and the inguinal, are so similar as to need no repetition.

S E C T.

S E C T. X.

The Congenial Hernia.

THE *congenial hernia*, as it is now called, is that particular kind of hernia, in which the portion of intestine, or omentum, which occasions the tumor, instead of being found alone in the hernial sac (as in a common rupture) is found in contact with the naked testicle; the bag containing it being formed by the *tunica vaginalis testis*.

The manner in which a common hernial sac is formed, has already in a former chapter been related, viz. by the thrusting forth of a portion of the peritoneum through the opening in the tendon of the external oblique muscle of the abdomen; which portion so thrust forth contains a piece of intestine, or omentum, or both. A hernial sac thus formed always communicates with the cavity of the belly, but never with that of the *tunica vaginalis testis*. It passes down anterior to the spermatic

matic chord, and when it is laid open, is found to contain only a portion of gut, or caul, and a small quantity of fluid.

On the contrary, the sac of a congenial hernia is formed by the tunica vaginalis testis itself; and when it is laid open, (whatever else may be in it) it is always found to contain the testicle, covered only by its proper coat, commonly called tunica albuginea.

The manner in which this is brought about, the original or early situation of the testes in a foetus, their descent, their protrusion from the cavity of the belly, and the formation of the tunica vaginalis testis, I have described so much at large in two tracts already published,* that I shall give a very short account of them in this place.

That bag which is designed to make the future tunica vaginalis testis is an originally-formed part, lies in the groin, under

* An account of the congenial hernia, published in 1757; and some observations on the hydrocele, published in 1762. In Dr. Hunter's Medical Comment. No. 1, may also be seen a very ingenious account of this matter, by his brother Mr. John Hunter.

the skin and adipose membrane, and has an orifice always open to the abdomen of a foetus. By means of this orifice, the testicle at proper time descends into the groin first, and then most commonly into the scrotum; and when it has been some little time in the latter, the opening from the belly generally becomes close, and is obliterated. By the closing of this passage, a bag or cavity is formed, which contains within it the testicle covered only by its tunica albuginea, and which bag never afterward has any communication with the orifice into the cavity of the belly.

The time at which the testicles are thrust forth from the belly is very uncertain, as I have often experienced; and so is that of the absolute closing of the sacculus. In some they pass out before birth, in some immediately after, and in some not till some time after; in some they never pass out at all, and in others, they (that is the two) arrive in the groin, or scrotum, at different, and sometimes very distant times. In short, the intention of nature, and her process, is in general regular and plain,
but

but it is accomplished at different periods in different persons, and sometimes, like most other parts of the animal œconomy, it is totally prevented by accident, or malformation.

The intrusion of a piece of intestine or omentum into the orifice of the tunica vaginalis is one of these accidents. By means of either of these, the closing of the passage is prevented, and a hernial sac of a particular kind formed. This sac being really the vaginal coat of the testis, must, if that body has fallen from the abdomen, contain the intestine, omentum, or whatever forms the hernia, and the testicle, in immediate contact with each other.

This is the congenial hernia ; a disease unknown till within these few years, but by no means an infrequent one.

The appearance of a hernia in very early infancy, will always make it probable that it is of this kind ; but in an adult, there is no reason for supposing his rupture to be of this sort, but his having been afflicted with it from his infancy ; there is no external mark or character, whereby it can be

be certainly distinguished from one contained in a common hernial sac; neither would it be of any material use in practice, if there was.

When returnable, it ought like all other kind of ruptures to be reduced, and constantly kept up by a proper bandage; and when attended with symptoms of stricture, it requires the same chirurgic assistance as the common hernia.

In very young children, there are some circumstances relative to this kind of rupture, which are very well worth attending to, as they may prove of very material consequence to the patient.

A piece of intestine, or omentum, may get pretty low down in the sac, while the testicle is still in the groin, or even within the abdomen; both which I have seen. In this case, the application of a truss would be highly improper; for in the latter, it might prevent the descent of the testicle from the belly into the scrotum; in the former, it must necessarily bruise and injure it, give a great deal of unnecessary pain, and can prove of no real use.

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Such bandage therefore ought never to be applied on a rupture in an infant, unless the testicle can be fairly felt in the scrotum, after the gut or caul is replaced; and when it can be so felt, a truss can never be put on too soon.

As this kind of rupture is subject to stricture with all its consequences, as much as that which is contained in a common hernial sac, and therefore liable to stand in need of the chirurgic operation; it may be very well worth an operator's while to know, that an old rupture, which was originally congenial, is subject to a stricture made by the sac itself, independent of the abdominal tendon, as well as to that made by the said tendon.

Whether this be owing to the weight of the testicle at the bottom of the sac, and the endeavours which nature makes to close the upper part of the tunica vaginalis, or to what other cause, I will not pretend to say, but the fact I have several times noticed, both in the dead and in the living. I have seen such stricture made by the sac of one of these herniæ, as pro-

duced all those bad symptoms which render the operation necessary; and I have met with two different strictures, at near an inch distance from each other, in the body of a dead boy about fourteen, one of which begirt the intestine so tight, that I could not disengage it without dividing the sac.

In this kind of hernia I have also more frequently found connections and adhesions of the parts to each other, than in the common one; but there is one kind of connection sometimes met with in the congenial hernia, which can never be found in that which is in a common hernial sac, and which may require all the dexterity of an operator to set free; I mean that of the intestine with the testicle, from which I have more than once experienced a good deal of trouble.

When a common hernial sac has been laid open, and the intestine and omentum have been replaced, there can be nothing left in it which can require particular regard from the surgeon; but by the division of the sac of a congenial hernia, the testicle
is

is laid bare, and after the parts composing the hernia have been reduced, will require great regard and tenderness, in all the future dressings, as it is a part very irritable, and very susceptible of pain, inflammation, &c.

If a large quantity of fluid should be collected in the sac of a congenial hernia, and, by adhesions and connections of the parts within, the entrance into it from the abdomen should be totally closed, (a case which I have twice seen) the tightness of the tumor, the difficulty of distinguishing the testicle, and the fluctuation of the fluid, may occasion it to be mistaken for a common hydrocele; and if without attending to other circumstances, but trusting merely to the feel and look of the scrotum, a puncture be hastily made, it may create a great deal of trouble, and possibly do fatal mischief.

By what has fallen within my observation, I am inclined to believe that the sac of a congenial hernia is very seldom, if ever, distended to the degree which a common hernial sac often is: it also, from be-

ing less dilated, and rather more confined by the upper part of the spermatic process, generally preserves a pyriform kind of figure, and, for the same reason, is also generally thinner, and will therefore require more attention and dexterity in an operator when he is to open it. To which I believe I may add, that common ruptures, or those in a common sac, are generally gradually formed, that is, they are first inguinal, and by degrees become scrotal; but the congenial are seldom, if ever, remembered by the patient to have been in the groin only.

S E C T. XI.

Exomphalos.

THE Exomphalos, or Umbilical rupture, is so called from its situation, and has, like the other, for its general contents, a portion of intestine, or omentum, or both. In old umbilical ruptures, the quantity of omentum is sometimes very great.

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Mr. Ranby says, that he found two ells and half of intestine in one of these, with about a third part of the stomach, all adhering together.

Mr. Gay and Mr. Nourse found the liver in the sac of an umbilical hernia; and Bohnius says that he did also.

But whatever are the contents, they are originally contained in the sac, formed by the protrusion of the peritoneum.

In recent, and small ruptures, this sac is very visible; but in old, and large ones, it is broken through at the knot of the navel, by the pressure and weight of the contents, and is not always to be distinguished; which is the reason why it has by some been doubted whether this kind of rupture has a hernial sac or not.

Infants are very subject to this disease, in a small degree, from the separation of the funiculus; but in general they either get rid of it as they gather strength, or are easily cured by wearing a proper bandage. It is of still more consequence to get this disorder cured in females, even than in

males, that its return when they are become adult, and pregnant, may be prevented as much as possible ; for at this time it often happens, from the too great distention of the belly, or from unguarded motion when the parts are upon the stretch. During gestation it is often very troublesome, but after delivery, if the contents have contracted no adhesion, they will often return, and may be kept in their place by a proper bandage.

If such bandage was always put on in time, and worn constantly, the disease might in general be kept within moderate bounds, and some of the very terrible consequences which often attend it might be prevented. The woman who has the smallest degree of it, and who from her age and situation has reason to expect children after its appearance, should be particularly careful to keep it restrained.

In some the entrance of the sac is large, and the parts easily reducible ; in others they are difficult, and in some absolutely irreducible. Of the last kind many have been suspended for years in a proper bag,
and

have given little or no trouble. They who are afflicted with this disorder, who are advanced in life, and in whom it is large, are generally subject to colics, diarrheas, and if the intestinal passage be at all obstructed, to very troublesome vomitings.* It therefore behoves such to take great care to keep that tube as clean and free as possible, and neither to eat or drink any thing likely to make any disturbance in that part.

The cure, as proposed by authors, is either radical, or palliative.

Celsus, Paulus Ægineta, Albucasis, Aquapendens, Guido, Severinus, Rolandus, and others, mention a radical cure by ligature; Fab. ab Aquapendente proposes, “aut medicamentis aut ferro umbilicum adurere;” but after having described both methods, he lays them under such restraints, from age, habit, size of the tumor, time of the year, &c. as amounts almost to a prohibition against putting them in practice at all; and it is to be hoped that nobody will attempt to revive them.

* On which account they are often supposed to labour under a stricture of the intestine, when they really do not,

The methods by ligature are two; in the one, the skin covering the tumor is to be lifted up with the finger and thumb, or with a small hook, to free it from the intestine underneath, and then a ligature is to be made round the basis of the tumor, so strict as to procure a mortification of all that part which is anterior to such ligature. In the other, the skin is to be elevated in the same manner, and a needle armed with a double ligature, is to be passed through the basis of the tumor, which is to be tied above and below, or on each side, so tight as to produce the same effect. Previous to the drawing the ligature close, it is advised to make a small incision in the top of the tumor, large enough to pass in the end of the fore-finger, and with it so to depress the intestine or omentum, as to prevent their being engaged in the stricture.

The intention in both these methods is the same, viz. by destroying the lax skin covering the top of the tumor, to produce a cicatrix which shall bind so tight, as to restrain the parts from any future protrusion.

The

The objections to either of them are so obvious, that it is hardly necessary to say any thing concerning them ; though in this age of quackery and credulity, I should not wonder to see them revived and practised.

In young subjects, and small herniæ, a bandage worn a proper time generally proves a perfect cure ; and in old persons, and large tumors, it is hardly to be supposed that any body can think of any, but a palliative one, the hazard of producing a mortification being so great..

But suppose the subject to be young, and the tumor of such size, and in such state, as to make it unlikely that a bandage would do more than palliate ; that the skin covering the tumor is so lax, as to make it improbable that it should ever recover its former state, and lie smooth, and that when it has been removed, the cicatrix shall bind so tight, as to prevent the future protrusion of any of the contained parts ; yet who can tell what may be the consequence of this destruction of parts, and this indilatibility of the skin in a state of pregnancy. I mention this, because I have seen very terrible mischief from the bursting of a cicatrix on
the

the navel, during gestation; though the scar was from an abscess, opened by incision, and consequently could not be supposed to be equal, either in size or resistance, to one produced by the before-mentioned operation.

The umbilical, like the inguinal hernia, becomes the subject of chirurgic operation, when the parts are irreducible by the hand only, and are so bound as to produce bad symptoms. But though I have in the inguinal and scrotal hernia advised the early use of the knife, I cannot press it so much in this; the success of it is very rare, and I should make it the last remedy. Indeed I am much inclined to believe, that the bad symptoms which attend these cases are most frequently owing to disorders in the intestinal canal, and not so often to a stricture made on it at the navel, as is supposed. I do not say that the latter does not sometimes happen, it certainly does; but it is often believed to be the case when it is not.

When the operation becomes necessary, it consists in dividing the skin and hernial sac, in such manner as shall set the intestine free from stricture, and enable the surgeon to
return

return it into the abdomen, if found, and not adherent; but if it be gangrenous, or mortified, the altered part must be removed, and the fæcal discharge be derived through the wound; by which means, some few have preserved their lives, if such state can be called living.

S E C T. XII.

Ventral Hernia, &c.

THIS may appear in almost any point of the forepart of the belly, but is most frequently found in or between the recti muscles.

The portion of intestine, &c. is always contained in a sac, made by the protrusion of the peritoneum. When reduced, it should be kept in its place by bandage, and if attended with stricture, which cannot otherwise be relieved, that stricture must be carefully divided.

The hernia Foraminis Ovalis, I have never seen.

All

All the parts almost which are contained in the belly or pelvis, are by the dilatation of their connecting membranes, capable of being thrust forth, and of producing swellings, all which are called herniæ.

Ruyfch gives an account of an impregnated uterus being found on the outside of the abdominal opening; and so does Hildanus and Sennertus. Ruyfch also gives an account of an entire spleen having passed the tendon of the oblique muscle. And I have myself seen the ovaria removed by incision, after they had been some months in the groin.

The urinary bladder is also liable to be thrust forth, from its proper situation, either through the opening in the oblique muscle, like the inguinal hernia, or under Poupart's ligament, in the same manner as the femoral.

This is not a very frequent species of hernia, but does happen, and has as plain and determined a character as any other.

It has been mentioned by Bartholin, T. Dom. Sala, Platerus, Bonetus, Ruyfch, Petit, Mery, Verdier, &c. In one of the histories given by the latter, the urachus, and impervious umbilical artery on the left side,

sicle, were drawn through the tendon into the scrotum, with the bladder; in another he found four calculi.

Ruyfch gives an account of one complicated with a mortified bubonocoele. Mr. Petit says he felt several calculi in one, which were afterwards discharged through the urethra.

Bartholin speaks of T. Dom. Sala as the first discoverer of the disease, and quotes a case from him, in which the patient had all the symptoms of a stone in his bladder; the stone could never be felt by the *sound*, but was found in the bladder (which had passed into the groin) after death.

As the bladder is only covered in part by the peritoneum, and must insinuate itself between that membrane and the oblique muscle, in order to pass the opening in the tendon, it is plain that the hernia cystica can have no sac, and that, when complicated with a bubonocoele, that portion of the bladder which forms the cystic hernia must lie between the intestinal hernia and the spermatic chord, that is, the intestinal

testinal hernia must be anterior to the cystic.

A cystic hernia may indeed be the cause of an intestinal one; for when so much of the bladder has passed the ring, as to drag in the upper and hinder part of it, the peritoneum which covers that part must follow, and by that means a sac be formed for the reception of a portion of gut or caul. Hence the different situation of the two herniæ in the same subject.

While recent, this kind of hernia is easily reducible, and may, like the others, be kept within by a proper bandage; but when it is of any date, or has arrived to any considerable size, the urine cannot be discharged, without lifting up, and compressing the scrotum; the outer surface of the bladder is now become adherent to the cellular membrane, and the patient must be contented with a suspensory bag.

In case of complication with a bubo-nocele, if the operation becomes necessary, great care must be taken not to open the
bladder

bladder instead of the sac, to which it will always be found to be posterior. And it may also sometimes by the inattentive be mistaken for a hydrocele, and by being treated as such, may be the occasion of great or even fatal mischief.

S E C T. XIII.

Attempts toward a radical Cure.

IN the first section of this treatise I have said, that the means used to obtain both a palliative and a radical cure were exactly the same, and the event was dependent on many circumstances, which a surgeon could neither direct nor alter; such as the age of the patient, the date of the rupture, the thickness of the hernial sac, the size of the abdominal openings, &c.

They who are unacquainted with the true nature of this disease may possibly be surprised at this assertion, and be thereby induced to believe, what has in all times been so confidently asserted, viz. that there are methods and medicines, whereby this disease
may

may always be perfectly cured ; and that the surgeons, either through indolence will not get information of them, or through obstinacy will not practise them. If either of these charges was true, it must be the latter, for we certainly do know what attempts of this kind have been made ; and if any of these means had really deserved the character which has been given of them, had been safely practicable, or had proved generally successful, I should certainly have spoken of them in their proper place : but this is so far from being the case, that on the contrary, however they may have been applauded by a few individuals, they have upon repeated experiment been found unfit for general practice, being either totally inefficacious, or painfully mischievous. The majority, nay, almost all they who have submitted to, or tried them, have remained uncured of their disease, or have been mutilated or murdered in the attempt.

Several of these methods have indeed the sanction of antiquity, and have been described and even practised by many of the old surgeons : the principal of these, or they which

which are most worthy of notice, are the *cure by cautery* ; *the cure by caustic* ; *that by castration* ; *the punctum aureum* ; *the royal stitch* ; and *the cure by incision*.

In Avicenna, Albucasis, Paulus Ægineta, Fab. ab Aquapendente, Guido de Cauliaco, Severinus, Theodoric, Rolandus, Serjeant Wiseman, and others, will be found the *cure by cautery*, which is performed as follows.

After a proper time spent in fasting and purging, the patient must be put into an erect posture, and by coughing, or sneezing, is to make the intestine project in the groin as much as possible ; when the place and circumference of such projection is to be marked out with ink. Then the patient being laid upon his back, the intestine is to be returned fairly into the belly, and a red-hot cautery is to be applied according to the extent of the marked line. For this purpose, cauteries of different sizes, shapes, and figures, have been devised ; annular, elliptical, circular, like the Greek letter Gamma, &c. The writers who have given an account of this operation, have differed a good deal from each other, not only in the

size and figure of the cautery, but in the depth of its effect. Some have directed it to be repeated, so as to denude the os pubis; others direct that the skin only be destroyed by the iron; the cellular membrane, sac, periosteum, &c. with repeated escharotic applications. But in all of them the exfoliation * of the bone is made a necessary part of the process; the eschar and sloughs being separated, and the exfoliation cast off, the patient is ordered to observe an extremely strict regimen, to lie on his back during the cure, and to wear a bandage for some time after, in order to prevent a new descent of the parts, which notwithstanding all the pain, and all the hazard the patient had undergone, he was still liable to.

The cure by caustic seems to have succeeded to that by cautery, and is described by most of the same writers, particularly by Guido,

* Albucasis says, “ Et scias quod quando tu non consequeris os cum cauterio, non confert operatio tua.”

Rolandus orders the cautery to be used in the same manner; so do Guido, Theodoric, &c.

Brunus says, “ Si non fuerit os consecutum, in primâ vice, tunc iterum cauterium vice aliâ donec consequeris; quia si non consecutum fuerit os, cum cauterio, parum confert operatio tua.”

Guido, Severinus, Lanfranc, Parey, Theodoric, Scultetus, &c.

The patient being laid on his back, and the parts returned into the belly, a piece of caustic is to be applied on the skin, covering the opening in the abdominal tendon, so large as to produce an eschar, about the size of a half crown.

Some suffer this eschar to separate, others divide it, and then by the repeated applications of escharotics, destroy the membrana cellularis, with as much of the hernial sac as can be done without injuring the spermatic vessels. For this purpose different kinds of corrosive applications have been made use of: pastes loaded with sublimate or arsenick; the stirpes brassicæ, burnt; the tithymalus; the lapis infernalis alone, or with suet and opium; oil of vitriol; with many others, according to the humour of the operator. But though the means are somewhat different from each other, the end or intention in the use of them all is the same, viz. to remove or destroy the skin and cellular membrane covering the tumor, together with a part of the hernial sac, and by that means

to procure such an incarnation, as by its firmness, and its attachment to the bone, and parts adjacent, shall prevent a new descent of either gut or caul.

The mere relation of one of these methods is sufficient to shock any humane, or ingenuous man. The horror attending the use of the cautery must be great, to say nothing of the extreme uncertainty of the size or depth of the eschar; the apprehension from the caustic will be less, indeed, but the pain must be nearly as great, and of much longer duration.

The parts to be destroyed are, as I have just said, the skin, the membrana adiposa, part of the hernial sac, and the periosteum covering the os pubis, and this is to be accomplished without injuring the spermatic vessels, or the tendon of the abdominal muscle.

If the spermatic vessels are hurt, an inflamed or diseased testicle will be the consequence; if they are destroyed, the testicle will become useless. If the tendon of the oblique muscle be injured, either by the iron, or by the caustic, terrible floughs, a
large

large ill-conditioned fore, and a brisk symptomatic fever must be expected, which in some habits must be productive of considerable mischief: and that considerable mischief was often done by these processes, may be learned from the very writers who describe them.*

If

* Guido speaking of the cure by caustic says, “ In quo summe cavendum est, quod dominus sit de corrosivo; si enim indocte applicatur, febrem commovet, et accidentia mala.” That great pain, defluxion on the hæmorrhoidal vessels, and inflammation and swelling of the scrotum, were often the consequence of these attempts, may be learned from the same author, who, speaking of the method of applying the caustic, says, “ Et ita continue fiat quousque caro miracis tota fit corrupta, usque ad Didymum, quod cognoscitur per inflationem bursæ, et testiculorum.” And that the caustic has gone deep enough, he gives the following proof, “ Quod cognoscetur per majorem tumorem testiculi, et per majorem dolorem dorsi et partium posteriorum.” Brunus says, “ Et cave summâ diligentia, ne in horâ cauterizationis exeat intestinum, et comburatur.” Lanfranc, speaking of the ill effect of the caustic in some habits, says, “ Et sic multi spasmantur, et spasmati subito moriuntur.” Fab. ab Aquapendente says, “ Quæ tamen chirurgiæ uti videtis, difficiles admodum sunt, et inter subtilissimas haberi possunt; quo fit ut plerique patientes affectus perpetuo gestare quam his chirurgis submittere se vellent.” And in another place, “ Quæ porro chirurgiæ vehementem dolorem afferunt et satis difficiles sunt.”

If the os pubis be laid bare, whether by cautery or by caustic, some of the before-mentioned hazards must be incurred; if it be not, the intention will in general be frustrated; that is, the intestine will slip down behind the scar, and put the patient under the same necessity of wearing a bandage, as he lay under before he submitted to so painful and so hazardous an experiment.

If the preservation of life was the object of these means, something might be said in their vindication; the anceps remedium must for ever be preferable to desperation: but that is not the case; they are recommended to be put in practice, when the patient's life is in no kind of danger, and are designed merely to save him the trouble of wearing a truss, which purpose they can seldom answer; for it is well known, that after the use of the cautery, caustic, and every method, either proposed for a radical

“sunt.” In short, whoever will take the trouble of reading the old writers on this subject will, even from their own account, be satisfied, both of the pain, hazard and inefficacy of all these methods.

cure,

cure, or used to rescue a ruptured patient from death, that the intestine will slip down behind the cicatrix, and form a new bubo-nocele, which can only be kept up by a proper bandage.

The three other means made use of by the ancients toward obtaining a radical cure, were the *punctum aureum*, the *royal stitch*, and *castration*.

The *punctum aureum* was performed as follows. The intestines being emptied by purging, and the hernia reduced, an incision was made through the skin and membrana adiposa, down to the spermatic process. This incision was to be of such length, as to permit the operator, either with his finger or with a hook, to take up the said process, and to pass a golden wire under it; which wire was to be twisted in such a manner as to prevent the intestine from slipping down again into the hernial sac, but not so tight as to intercept or obstruct the circulation of the blood to the testicle. Some operators preferred a leaden wire to a golden one, and others a silken ligature.

It may possibly seem rather uncivil to say, that both this and the succeeding operation were directed and practised by people who were very little acquainted with the true nature and structure of the parts they operated upon, or indeed of the disease for which they prescribed such operation; but had not that been the case, they never could have proposed so fallacious and uncertain a method of treating it: for if the wire, or whatever was passed round the process, did not bind pretty tight, it would not prevent a descent of the gut, and the whole operation, though painful and irksome, must become absolutely useless; if it did bind tight, it must necessarily retard and obstruct the circulation of the blood through the spermatic vessels, and produce a disease of them, and of the testicle.*

The *royal stitch* was performed in this manner: the intestines being emptied, and the portion which had descended being

* Whoever would know the particular methods of executing this operation, may find them in Guido, Parey, Franco, Scultetus, Smaltzius, Permannus, Nuck, &c.

replaced,

replaced, an incision was made in such manner as to lay bare the spermatic chord, about two inches in length from the abdominal opening downward. When the process was freed from the cellular membrane, it was to be held up by an assistant, while the surgeon with a needle and ligature made a continued suture, from the lower part of the incision to the upper, in such manner as to unite the divided lips of the wound again, comprehending the cellular membrane, and thereby endeavouring to straiten the passage, as they called it, from the belly into the scrotum, without injuring the spermatic vessels.

The operation is described by many of the old writers,* with some small variation from each other, both in the manner, and in the instruments; but all tending to the same end, and all proving that their idea of the disease, and of the parts affected by it, were erroneous and imperfect.

The fatigue to the patient must be greater in this than in the preceding operation,

* Paulus, Albucasis, Fab. ab Aquapendente, Guido, Rolandus, Parey, Serjeant Wiseman, &c. &c. &c.

both on account of the large incision, and of the future.

In some habits either of them must be very hazardous, and in the majority of cases, painful, troublesome, and tedious; which circumstances might nevertheless be submitted to, if the cure was certain, the contrary to which did most frequently happen, even by the confession of the very writers who propose and describe these methods, and who universally order the long wearing a truss after such operations have been submitted to.

Some, who thought that the stitch added unnecessarily to the pain, have directed the incision to be made in the same manner as for the future; but, instead of sewing the lips together, have advised that the common membrane be dissected out pretty clean, and the fore digested and incarned. This is so like to the operation for the incarcerated bubonocoele, both in the manner of making the incision, and in its consequence, as tending toward a radical cure, that it may be looked upon as really the same thing; and how very fallacious and
uncertain

uncertain that operation proves toward answering this end is too well known.

Both these, the *royal stitch* and the *punctum aureum*, proved often destructive to the testicle, even in the most judicious hands, and when it got into those of ignorant pretenders, it proved most frequently so; for not knowing how to perform properly what they had undertaken, and finding it much more easy, after the incision was made, to slip out the testicle, they most commonly did so.

These are the principal methods proposed or practised by our forefathers for a radical cure of a rupture; among the writers indeed will be found some trifling variations from each other in the execution of them, but the intention and aim is the same in all, viz. to prevent a new descent of either gut or caul, by producing an union of the parts, through which they either did or were supposed to pass. According to the degree of anatomical knowledge, and humanity of the proposer, they will be found to be more or less rational and gentle; but are all of them painful, hazardous,

hazardous, and most frequently fallacious, and have therefore been totally disused by all modern practitioners, who have either knowledge, compassion, or honesty.

No disease has ever furnished such a constant succession of quacks as ruptures have; they who have had some smattering of anatomy or surgery, and whose humanity has not been their prevailing quality, have adopted one of the preceding operations, or something like them; while they who have had less knowledge, and more timidity, have had recourse to the more sneaking knavery of specific applications.

The histories of prior Cabriere, Bowles, Sir Thomas Renton, Dr. Little John, &c. &c. &c. to be found in Dionis, Houston, and other writers, will furnish to the reader an idea of the practice and performances of some of those who stood at the head of those bold promisers: and our present news-papers daily supply us with a number of the lesser dealers in specific medicines, and new-invented bandages, by which the poor and credulous are gulled out of what little money they can spare.

spare. Operative quackery is not indeed so frequent, or so readily submitted to; but I wish I could not say that more than one life has not been destroyed in our own time, by attempts to form and support the character of an operator in this disease: to this kind of hazard indeed the poor are luckily not so liable, as it can only be worth the while of these rupture-doctors to murder those who have beforehand been simple enough to pay them well for it.

This is a subject in which mankind are much interested, and on which a good deal might be said; but as an honest attempt to save the afflicted from the hands of those who have no character to lose, and whose only point is money, might, from one of the profession, be misconstrued into malevolence and craft, I will not enter into it, but shall conclude by wishing, that they who have capacity to judge of these matters, (which are as much the objects of common sense, as any other kind of knowledge) would not suffer themselves to be deluded by the impudent assertions of any
Charlatan

Charlatan whatever, but determine in this, as they do in many other things, that is, by the event. In short, if they who have so much credulity, as to be inclined to believe, and trust these lying impostors, would only defer the payment of them till they had completed their promises, the fallacy would soon be at an end.

A
T R E A T I S E
ON THE
H Y D R O C E L E,
OR
W A T R Y R U P T U R E,
AND OTHER
D I S E A S E S OF THE T E S T I C L E,
IT'S COATS AND VESSELS;
(ILLUSTRATED WITH CASES.)

P R E F A C E

TO the SECOND EDITION.

THE following tract, as the title expresses, is designed as a supplement to one published a few years ago; one of the objections to which was, that it was defective in matter, and ought to have comprehended the false herniæ; they being as real diseases, and requiring Chirurgical assistance as much as the true.

This deficiency I have now endeavoured to supply in the best manner I am able.

When I began to put these papers in order, I did not think they would have run to such a length; and when they were finished, I did not know how to shorten them without rendering them less explicit.

VOL. II.

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I am perfectly sensible that some parts of them will appear prolix and diffuse, and that such manner of writing is in general very justly objected to; but yet cannot help thinking that sometimes it may be excusable, or even necessary.

When application is made to the judgment merely, and information is intended to be conveyed to many people of different capacities, it may become necessary to set the same object in several different lights; and to repeat the same thoughts many times in different words: to those who have not been much conversant with the thing treated of, a studied brevity would become a perplexing obscurity; however satisfied such readers might be with the stile of the writer, they would not be made sufficiently acquainted with the subject; they might be pleased, but they would not be informed.

I should indeed be very sorry to have conveyed my meaning in such manner as to disgust the judicious; but as my principal intention was to instruct the unknowing, my chief aim has been perspicuity. If the learned and critical are not displeased, I shall

shall be glad; if the ignorant gain any knowledge, I shall be much more so. The character of an elegant writer I make no pretension to; that of a skilful surgeon, and of a man who has done some good in the way of his profession, I should be extremely glad to deserve.

With regard to this second edition, all I have to say, is, that it has cost me some time and trouble; that it contains many additions to the former; and, that I hope the reader will find it, not only a more correct, but a more instructive book.

A
T R E A T I S E
ON THE
H Y D R O C E L E, &c.

S E C T I O N I.

THE various diseases comprehended under the general term **HERNIA**, have, by surgeons, been divided into two classes ; one of which they have distinguished by the epithet *true*, the other they have called *false*, or *spurious*.

Under the first, they have ranged all those tumors, which are produced, either by the *descent*, or *protrusion*, of some of those parts which should naturally be contained within the cavity of the abdomen ;

domen; but which, by being displaced from their proper situation, form swellings in the navel, groin, belly, scrotum, and thigh.

By the second, they mean all such diseases of the testicles, their coats, and vessels, as proceed from, or are accompanied by, the induration, enlargement, or other morbid affection of such parts; or occasion the lodgment, or accumulation, of extravasated fluid within them.

So that what are generally called *true Herniæ* are tumors, occasioned by the removal of certain parts from their proper and natural situation, such parts still remaining, in general, sound, and free from disease; while those termed *false*, are original disorders of the parts themselves, in which they are seated: a distinction, which is invariably true, and very necessary to be attended to, by all who would understand the real nature of each. A part of the intestinal canal, or of the omentum, the stomach, uterus, or bladder, are what most frequently make the contents of the former; a varicous distention of the spermatic vessels, extravasated blood or water, within

within the membranes either of the testicle or of the spermatic vessels, an inflammatory enlargement, and a scirrhus or cancerous state of the testis itself, constitutes the latter.

The *true herniæ* receive their distinguishing appellations, either from the particular part of the body in which the swelling makes its appearance, or from what is contained within such tumor; and are therefore called *inguinal*, *scrotal*, *umbilical*, and *ventral*; or intestinal and omental ruptures. The spurious derive their names, either from their supposed contents, as the *pneumatocele*, *hæmatocele*, and *hydrocele*, or from the alteration made by the disease in the natural structure of the parts concerned, as the *varicocele*, *cirsocele*, and *sarcoccele*: to which some have added that inflammatory defluxion on the testicle, commonly called *hernia humoralis*.

The *pneumatocele* is a mistake; there is no tumor of this kind, and in this situation, in a living animal: it is indeed particularly described by many writers, both ancient and modern, and said to be a disorder to which infants are particularly liable: but the complaint so described, and which

nurses and ignorant people, do still call a *wind-rupture*, is not what they take it for; neither is it produced by wind: it is, either a true *intestinal hernia*, or a species of hydrocele: which will be taken notice of hereafter. The *varicocele* (which is an enlargement and distention of the blood-vessels of the scrotum) is very seldom an original disease, independent of any other; and when it is, is hardly an object of surgery.

The *cirsocele*, or varicous state of the spermatic vein, though it be really a disease, and sometimes very troublesome to those who are afflicted with it, yet is seldom capable of much relief, beyond that of a suspensory bandage.

S E C T. II.

OF THE HYDROCELE IN GENERAL.

THE term *hydrocele*, if used in a literal sense, means any tumor produced by water; but surgeons have always confined it to those which possess either the

mem-

membranes of the scrotum, or the coats of the testicle, and its vessels.

The first of these, *viz.* that which has its seat in the membranes of the scrotum, is common to the whole bag, and to all the cellular substance which loosely envelopes both the testes. It is, strictly speaking, only a symptom of a disease, in which the whole habit is most frequently more or less concerned, and very seldom affects this part only.* The latter, or those which occupy the coats immediately investing the testicle and its vessels, are absolutely local, very seldom affect the common membrane of the scrotum, generally attack one side only, and are frequently found in persons who are perfectly free from all other complaints.

Notwithstanding the obvious and material difference between the two kinds of disease, they have by the majority of writers been confounded together; have been considered as springing from the same

* I have seen a true anasarcaous watry distention of the cells of the dartos confined to one side of the scrotum only.

imme-

immediate source, and as requiring the same kind of treatment; although the one is plainly and evidently a mere symptom, or attendant on, a general disorder; and the others are strictly and absolutely local complaints. This one fundamental error has been the occasion of many others. The supposition that all collections found in the membranes and coats of the scrotum and testicles are of the same general kind, has produced an infinite variety of wild conjectures, concerning the particular and immediate nature and origin of them. By some they have been attributed to a particular indisposition of the liver, kidneys, or spleen; by others, to a natural and necessary connection between the spermatic vessels and those of the kidney; by many the fluid has been thought to be of the urinary kind, or at least that it ought to have passed through the kidney, but that, mistaking its right way, it gets into the membranes of the scrotum and testicles;* while others have affirmed, that

* “Supervenit quandoque ex causa aliqua externa et manifesta, ut ictu, casu, &c. Crebro vero, ex latente, “et

that all complaints of this kind are really symptoms of a dropfical habit; that the fluid comes from the cavity of the belly, and either passes through the peritoneum, or extends that membrane down into the

“et non manifesta. Quæ ab externa causa accessit, aut
 “dextrum, aut sinistrum renem indifferenter affligit; a
 “latente vero, et non manifesta causa originem ducens,
 “nunquam alium quam sinistrum.” Schenkus, Obs.

“Rene, hec malo affecto, nec officio suo probe fun-
 “gente, urinæ pars quam emulgens hæc ad se pertraxit,
 “cum ad vesicam per male affectum renem non potest
 “descendere, per feminalem in erythroideam delabatur;
 “hoc modo hydrocelem ingenerans.”

“Hinc apparet et abunde manifestum est, quamobrem
 “hydrocele haud ab externa, sed a latente originem
 “ducens, non nisi in sinistram membranam incidat; et
 “hujus testem affligat.” Schenkus.

“Hernia aquosa, si a causa interna et latente originem
 “ducit, ut plurimum sinistram partem scroti occupat;
 “serosusque ille humor, in membrana testem involvente,
 “erythroiden dicta, colligitur: idque fit præcipue, rene
 “sinistro male affecto; quapropter serosos humores non
 “attrahens, et ad vesicam non mittens, per venam femi-
 “nariam, quæ in isto latere, ex emulgente procedit, in
 “membranam erythroiden delabatur.”

Gul. Fab. Hildanus.

“Ne serosus humor qui a rene attrahi non potest in
 “abdomine retineatur.” Hildanus.

“Si hernia fiat ex humoribus venientibus a renibus ad
 “testiculum, cognoscitur tactu.” Lanfranc.

scrotum.

scrotum.* Many cautions have been laid down against attempting the cure of one species of this disease hastily, or without a previous course of medicine, upon a supposition that the defluxion is of a noxious nature; and that, by falling on this part, it frees the constitution from several other distempers.† It has been described, as frequently producing a corrupted or otherwise diseased testicle;‡ as being nearly allied

* “ Colligitur liquor in hypochondriis, qui facile descendit.” Fab. ab Aquapend.

“ Aliquando descendit aqua illuc sicut descendit in hydropicis.” Lanfranc.

† “ Sæpe ego vidi multos per hernias liberatos esse a gravibus affectibus; ab empyemate, hydrope pulmonis, &c. unde si penitus sanetur, poterit multos morbos postea inferre.” Fallopius.

‡ “ Testis autem substantia, ab acrimonia humoris, successu temporis corrumpitur.” Schenkus.

“ Sciendum est, quod in hernia illa, in qua continetur aqua in vagina testis, et quæ aliquantisper sit diuturna, corruptus est testis.” Fallopius.

“ Ubi paulo diutius humor iste intus relinquitur, metuendum est ne testiculus sensim, cum eodem corrumpatur, vel occalescat, atque ita scirrhum, vel farcocelen, vel cancerum tandem sentiat.” Heister.

“ Ne

allied in nature to those tumors which are called encysted, whose tunics are formed out of the common membrane by mere pressure; and as being generally accompanied with a true hernia, or descent of the intestine or omentum; which last (supposed) circumstance has been gravely urged as a reason for not attempting a radical cure.*

The

“ Ne scilicet collectum in scroto serum per acredinem
 “ paulatim contractam partes, internas, et cum primis
 “ testiculum, corrumpat; et noxam magis periculosam
 “ efficiet.” Heister.

“ Notandum vero aquam in scroto non esse diu relin-
 “ quendam ne a mora testis corrumpatur; vel una cum
 “ aqua adveniat hernia carnosa et caro concreascit.”

Fab. ab Aquapendente.

* The opinion of the late Mr. Cheselden on this subject is so singular, and so little consonant to truth, or nature, that I shall take the liberty to repeat his words, lest his great character should mislead the unwary. In the last edition of his anatomy, p. 264, he says, “ The true her-
 “ nia aquosa is from the abdomen, which either extends
 “ the peritoneum into the scrotum, or breaks it; and then
 “ forms a new membrane, which thickens as it extends,
 “ as in aneurisms and the atheromatous tumors: the
 “ dropsey in the cyst (for such it properly is) rarely admits
 “ of more than a palliative cure by puncture, or tapping,
 “ like the dropsey of the abdomen; and this with some
 “ difficulty, because the omentum generally, and some-
 “ times the gut, descends with it.” Which is so far
 from being the case, that unless in the particular and very
 singular

The same wanton liberty has been taken, in assigning different seats to these disorders, as in accounting for their origin: every part which invests, or accompanies, the spermatic vessels, or the testicles, not only the tunica communis of the process, and the cavity of the tunica vaginalis (the true and real seats of one or other of these disorders) have been enumerated, but several imaginary ones have been added; firm, compact membranes have been split into lamellæ; and cysts and coats have been devised, which never had a real existence.

If all this was matter of mere speculation, and produced no mischief in practice, it would be of no importance; but, in matters of physic and surgery, this seldom or never happens: erroneous ideas of the nature, origin, and seats of diseases, most commonly are followed by improper methods of treating them. In the present case, the absurdity of the conjectures con-

sidering an instance of a combination of an hydrocele, with a congenial hernia, it never can happen; the bags or sacs of an hydrocele, and of a hernia, being in all other instances totally different; and the former never having any communication with the belly.

cerning

cerning these circumstances in the disorder, is fully equalled by the methods of cure which have been proposed and practised.

Upon a supposition, that the extravasation of fluid was the consequence of a dropfical habit, strong purges and powerfully diuretic medicines have been prescribed; actual cauteries have been used; and ligatures and incisions made, both on the spermatic vessels and in the groin, to hinder the descent of the water from the cavity of the belly; * astringent liquors and

* “ Et cum totam evacuaveris aquam, cauteriza locum quem aperuisti; et fac duo cauteria punctualia in inguina, ex utraque parte unum, supra didymum; quod si non cauterizes, aqua iterum redit. Sed cauteria redire materiam iterum non permittunt.” Lanfranc.

“ Et iterum redit nisi cauterizetur post perforationem.”

Brunus.

“ In apertione duplex est intentio, scilicet aperire et prohibere ne rursus aqua descendat.”

Fab. ab Aquapend.

“ Avicennas utitur ferramentis candentibus in regione inguinis ut corrugatur pars, ne aqua posset descendere.”

Fab. ab Aquapend.

“ Sin autem in rene vitium non fuerit, et defluxum plane impedire volueris, incisionem, superiore parte scroti prope inguina, fieri expedit; quandoquidem duplex

chirurgo

and ardent spirits have been injected, with a view to closing or foldering broken lymphatics; tedious and painful operations have been practised, for the eradication of imaginary cysts; directions have been given to evacuate the water at different times, lest the patient's strength should fail, or his health suffer, by its being done too suddenly; and the testicles being supposed to be frequently spoiled, by long laying in the water, castration has often been performed in the simple hydrocele.

Dr. Monro (the father) who is professor of anatomy at Edinburgh, and Mr. Samuel Sharp, late surgeon to Guy's hospital, are almost the only writers, who have sensibly and rationally explained the true nature and theory of these diseases: to them the pro-

“chirurgus est scopus; prior evacuare serosum humorem,
“posterior prohibere ne de novo aqua in scrotum defluat.”

“Et quia tota aqua in tunica illa, (nempe vaginali)
“continebatur, ita ut testiculus ei innataret, ne in poste-
“rum denuo descenderet aqua acu incurvato ac filo re-
“duplicato universam hanc tunicam (præter vasa semi-
“nalia) apprehendi et mediocriter constrinxi, atque la-
“gavi.” Fab. Hildanus.

session

feſſion is greatly obliged, for having thrown much light on the ſubject; and for having furniſhed their readers with more juſt ideas than any others.

S E C T. III.

THE ſpermatic veſſels, like moſt of the contents of the abdomen, lye behind the peritoneum, enveloped in the common tela cellulofa, or what uſed to be called the cellular appendix of the peritoneum. The arteries, which are two, ariſe from the trunk of the aorta, in the midway between the emulgent, and lower meſenteric. At their origin they are very ſmall, and, contrary to all the other arteries of the body, they ſeem rather to increaſe in diameter as they deſcend. In their paſſage downward, they impart ſeveral branches to the cellular membrane which inveſts them; and before they arrive at the teſticles, they are divided into four or five principal ones; one of theſe goes to the epididymis, the others to the teſtis; the latter having

passed the tunica albuginea, and being convoluted in a most wonderful manner, composes the greatest part of the body of that gland: from these convolutions of the spermatic artery, the semen is secreted: which fluid is, after such secretion, immediately received by those particular vessels, which late anatomists have agreed to call the vasa efferentia. These vary in their number, in different subjects, being from ten to fifteen, more or less: when collected together, they form the globus major, or larger extremity of that body, which, from its situation, is called epididymis; after this, they unite into one single tube, which being convoluted and contorted, in the most miraculous manner, constitutes the rest of that same body: so that the whole of the epididymis, except that immediate point which is formed by the concurrence of the vasa efferentia, does really consist of one single tube, whose diameter is said, in no part, to exceed the eightieth of an inch, but which is contorted some thousands of times; and if unravelled, and drawn out, is some yards in length. From the lesser
extremity

extremity of the epididymis proceeds the vas deferens, or that tube through which the semen is conveyed from the testis toward the penis; or, in other words, when this wonderful tube ceases to be convoluted, and puts on the appearance of one single, smooth vessel, it is then called vas deferens. This arises from the lesser end of the epididymis, enveloped in the same common tela cellulosa, in which the spermatic artery and vein are invested; and when it has got just above the edge of the os pubis, it separates from the said vessels, and passing down behind the peritoneum, proceeds to the inferior part of the neck of the bladder, where it deposits the semen, in the receptacles appointed for that purpose, called the vesiculæ seminales.

The blood, after the seminal secretion is performed, returns back into the general mass, by the spermatic vein; which on the right side empties itself into the vena cava, and on the left into the emulgent.

While the spermatic vessels are within the cavity of the belly, the cellular mem-

brane, in which they are enveloped, is much more lax and tender, and is endued with larger cells, than it is on the outside of the same cavity. As they go *under* the transversalis, and obliquus internus muscle, and *through* the obliquus externus, they receive a considerable addition of cellular membrane from the adjacent parts; and, when they have passed through the tendinous aperture of the last named muscle, they, together with their cellular tunic,* are covered by, and enveloped in, that

* The passage of the spermatic vessels *under* two of the muscles, and *through* the third, is a circumstance of much importance, and what every practitioner ought to be well acquainted with.

The common doctrine is, that in each of the oblique muscles and in the transversalis is a tendinous aperture, for the transit of the spermatic chord; and these supposed openings are called the *rings*. This is a mistake, which even some very modern writers in anatomy have fallen into: and lest their words should not convey an idea sufficiently erroneous, some of them have given us drawings of all these openings in regular gradations, above and behind each other. Nothing can be more false than such representation: the spermatic vessels do never pass *through*, but always *under* the transversalis and obliquus internus,
at

that expansion of muscular fibres, called the cremaster.

The membrane surrounding all that part of the spermatic vessels, which is on the outside of the abdomen, is called the tunica communis, or tunica vaginalis of the chord; and is (as has already been said) merely cellular; totally void of all other cavity than its cells; firmly adherent to the surface of the said vessels, in every part; and plentifully furnished with lymphatics.

It is of very great importance to have a just idea of the structure of this part of the funiculus spermaticus; the old term, tunica vaginalis, conveyed a very false one: it implied, that the vessels were contained within it, as in a sheath, and that, if the said vessels were not there, this coat would

at such distance as never to be affected by their action, or to suffer any stricture or strangulation from them. On the contrary, the spermatic chord always passes through an opening made for that purpose in the tendon of the obliquus externus; the action of which it is liable to be affected by; and when it is accompanied by a portion of intestine (as in the case of an hernia) it is this tendinous aperture which produces the stricture, the symptoms, and the hazard. A circumstance of great consequence for every man to know, who may ever be called upon to operate on a strangulated hernia.

form an empty bag, consisting of one cavity only; than which nothing can be more untrue.*

This is one great source, from whence many of the errors, which have been committed in the description of such diseases, as have (or are supposed to have) their seat in this part, have sprung; and therefore I take the liberty of repeating, that this tunic has no one particular cavity, but is a mere cellular membrane throughout its whole extent; and that it terminates, in a great measure, just above the epididymis, though a continuation of it may be traced on the surface of the tunica vaginalis testis.

* Even M. de la Faye, whose notes on Dionis have rendered the works of the latter more useful, has fallen into the common mistake with regard to this tunic, by supposing both it and the vaginalis to be formed out of the same membrane, and allotting a cavity or bag to the former. “ Il faut remarquer, que la tunique vaginale, “ et la gaine du cordon spermatique sont une continuation “ du tissu celluleux du peritoine, qui s’allonge pour en- “ veloper le testicule; a l’endroit, ou cette continuation “ continuation s’elargit, la nature a formé une cloison “ qui empeche la communication qui se trouveroit entre “ l’interieur de la gaine du cordon spermatique, et celui “ de la tunique vaginale,” DE LA FAYE.

The

The coats of the testicle are two only ; viz. the tunica vaginalis, or that bag which loosely invests it, without any adhesion to it, except in one particular part ; and the tunica albuginea, or that membrane, which is the immediate and proper covering of its vascular structure. A true and clear idea of these is absolutely necessary to the right understanding the diseases to which this gland is subject. In order to obtain such idea, the testicles must be examined, not only in an adult state, but in the infantine, and in that before birth also ; each of these states having its peculiarities, and all tending to explain the true nature of such maladies, as it is frequently subject to.

The testicles of the human species are always formed within the cavity of the belly, and remain there until or very near unto the time of birth. While they are within the abdomen, they are covered by one coat only ; which coat firmly adheres to the vascular structure of them, and is evidently derived from the peritoneum, in the same manner as the outer coat of

each of the viscera of the said cavity is. Their situation, during the first months, is higher than in the latter; and as the foetus increases in size, they slip gradually lower. Within the cavity of the abdomen, on each side, a little below the testes, is a small opening, or orifice, which leads immediately into a small but firm membranous bag, or cyst, whose upper part, or neck, passes through the opening in the tendons in the obliqui externi muscles; while its lower part, or sacculus, lies on the outside of the said muscles in the groin, enveloped in the common tela cellulosa. These orifices are always open until birth; and, most frequently, for some while after: during all which space of time, the said sacculi have free and open communication with the cavity of the belly.

By means of these orifices, the testicles pass from the cavity of the abdomen, through the tendinous apertures, into the sacculi in the groins; but the time in which they make this transit is by no means certain: sometimes it is just before birth, sometimes just after, sometimes they

they drop immediately into the scrotum, and sometimes they remain a considerable time in the groins; and it now and then happens, that they never pass through the muscle at all, but remain for ever within the belly. These are a kind of *lusus naturæ*; but in the ordinary course, they soon pass from the groins into the scrotal bags, the communication between the said bags and the belly continuing open some little time longer.

When the testicles are got fairly down into the *sacculi*, if the said *sacculi* be laid open, it will appear that the testicles are loosely enveloped by them, in such a manner as to be perfectly free from all cohesion, except in one part, where this bag and the proper coat of the testicle (the *albuginea*) are so firmly united, as to be plainly and demonstrably a continuation of one and the same membrane. And while the communication with the belly continues free and open, if the *sacculi* be divided from the bottom upward, it will as evidently appear, that the membrane of which they are composed is a continuation, or process of

of that part of the peritoneum which lines the muscles of the abdomen.

Some time after birth, the necks of these sacculi become close and impervious ; and from that time all communication between their cavities and that of the belly ceases. The time when this happens is various and uncertain ; I have seen them perfectly closed within a week, and open at the end of two months, nor do they both necessarily become close at the same time, in the same subject.

It sometimes happens, that while these passages are open, a piece of intestine insinuates itself into one of them, and, preventing its closing, produces what Haller calls a congenial hernia ; a disease which, though a modern discovery, has always been very frequent. It also sometimes happens, that the spermatic vessels not being sufficiently closed, one of the testicles rests in the groin, just without the opening in the abdominal muscle, and by not becoming pendulous in the scrotum, the orifice of the neck of the sacculus is not closed at all ; even though no portion of gut or caul has got into it.

When

When these orifices have been once perfectly closed, there never is any future communication between the cavities of the sacculi and that of the belly; nor can any thing solid or fluid (however small in size or quantity) ever, after this period, pass from the one to the other. The upper part, or neck, now loses all appearance of a distinct canal, and the lower part, or sac, loosely invests the testicle, and its epididymis, without any adhesion, except in the hinder part. The inside or cavity of this sac is constantly kept moist, by the exudation of a fine fluid; which fluid is as constantly absorbed: so that while these parts enjoy a sound healthy state, the fluid is no more in quantity, than what just serves to lubricate and keep moist the surfaces of both membranes, and thereby prevent any unnatural cohesion of them with each other.

From these premises, the following inferences, serving to point out and explain the true nature and seat of some of the diseases in question, may, I think, be deduced.

1. That

1. That the facculi, or bags, found in the groins, are originally-formed parts.

2. That they are placed there for the future reception of the testicles; and that when the upper part, or neck, of one of them becomes close and impervious, the lower part, or sacculus, constitutes and forms what is properly called the tunica vaginalis testis; which is therefore a true and original process of the peritoneum.

3. That of all the parts contained within the scrotum, these facculi are the only ones which ever naturally communicate with the cavity of the belly.

4. That, after a certain space of time, that communication ceases.

5. That whatever fluid may be shed from the spermatic vessels, or collected, or extravasated, in the cells of the tunica communis, or in those of the dartos; yet no part of such fluid can be derived from, or received into the cavity of the tunica vaginalis testis.

6. That a total failure of the secretion of that fine fluid, which should moisten the inside of the vaginal tunic, and the
outside

outside of the albuginea, must be followed by an unnatural cohesion of these membranes with each other; and either a partial or total abolition of the cavity of the former.

7. That if more of this fluid be deposited than the absorbent vessels can take up, or if the absorbent vessels do not execute their office, such fluid must be accumulated within the cavity of the said tunic; from which there being no natural outlet, the consequence must be a gradual distention and enlargement of it.

8. That the natural communication between the cavity of the tunica vaginalis and the belly, not being shut until some space of time after birth, it may become close at its upper part, while there is a quantity of fluid in the lower, too large for the absorbent vessels to take up immediately; and consequently, that such infant will, until that office be executed, labour under a true hydrocele of the tunica vaginalis testis; a case, which is very frequent, though generally mistaken for a wind-rupture.

And 9.

And 9. That the fluid of that kind of hydrocele, which is formed by the sac of a congenial hernia, must be lodged within the cavity of the vaginal coat; while all collections of serum, in the sacs of all other kinds of herniæ, must necessarily be perfectly distinct from the said tunic.

I should now proceed to the examination of each distinct species of hydrocele, but will intrude upon my reader's patience while I mention a circumstance or two, relative to the passage of the testicle from the belly into the scrotum; and which, as a practitioner, he may possibly think worth his attention.

I have said, that the time in or at which the testicles pass from the belly, through the groin, into the scrotum, is by no means certain; that it varies in different people; that even in the same person, the two testes do not always pass down at the same time; that sometimes both of them, sometimes one, remains within the belly, or in the groin, for a considerable space
of

of time after birth ; and that it now and then happens, that one or both of them never get into the scrotum at all.

I do not know any particular inconvenience arising from the detention of a testicle within the cavity of the belly ; but the lodgment of it in the groin, not only renders it liable to be hurt by accidental pressure, &c. but when it is so hurt may be the cause of its being mistaken for a different disease, and thereby occasion its being very improperly treated. To which considerations, this may be added, that there is no kind of disease, to which the testicle is liable in its natural situation, but what may also affect it, in any or all its unnatural ones.

C A S E I.

I WAS sent to in a great hurry, from the neighbourhood of Limehouse, and desired to bring with me, whatever I might want for the operation of a bubonocoele. I found

found a young, healthy, seafaring man, lying across his bed, and complaining of most acute pain in his groin and back. He told me, that “in the forenoon of the day before being at work on board his own vessel, he fell, and struck his groin against a piece of timber, with great violence; that it gave him such exquisite pain, that he fainted away; that his groin became immediately swollen to a very considerable degree; that as soon as he could get home, he applied to his apothecary, who bled him, put him to bed, and poulticed the tumor; that he passed the night without sleep, and in great agony; that when his apothecary came to him the next morning, he (the patient) informed him of a circumstance, which in his confusion, he had forgot the night before, viz. that he had long had a rupture on that side, which had never been perfectly returned; that, upon receipt of this information, the apothecary had bled him again, and had taken some pains to return the rupture: but finding that he made no progress, and that his attempts produced great increase of pain,

pain, he had desisted, and had given him two glysters, and a purge ; neither of which occasioning such discharge as he expected, and a kind of blackness now beginning to appear on the part, he desired immediate assistance." By the time this account was finished, the apothecary came in, and confirmed it.

The pain was exquisite ; and while I was asking the patient a few questions, he became very sick, and vomited. The groin and scrotum were much swelled, and very hard ; but the general figure and appearance of the tumor did not appear to me like that of a bubonocoele : instead of pointing obliquely from the ilium toward the pubes, it lay, as it were, across the groin : the scrotum was full and large ; but I thought it felt much harder than I had ever found a piece of intestine do ; and with regard to the alteration of colour, I cannot say it gave me much uneasiness ; for it was not at all like the effect of mortification, but had all the appearance of an extravasation, or ecchymosis. On the other hand, the man had not had a fair stool for three days ; he had been

very sick, and had vomited ; his belly was tight, hard, and painful ; and his pulse much too quick. From examination of the tumor, I could get very little information ; for the pain was so exquisite, that he could not bear the slightest touch : however, from what examination I could make, it appeared to me, that if this was an intestinal hernia, it was such a one as I had never yet met with ; and nothing but the circumstance of his having worn a truss formerly, by the direction of a surgeon of character, could have induced me to have entertained such suspicion. I enquired again concerning this rupture, and was told, that he had worn a truss for it the first four years of his infancy, but that it never kept the gut totally or perfectly up ; and that as he grew bigger, and ran about, he was obliged to leave it off, on account of the pain it gave him : that since he had left it off, he had not observed any, or very little alteration in the tumor, (none in its situation, though a little in its size ;) and that it had never given him any trouble or uneasiness, if he did not handle it, or kept the waistband of his breeches and his watch

watch from pressing it. All this was far from being satisfactory : and as the present state of the parts was such, as was by no means favourable for an operation, I determined, previous to any other attempt, to try what a brisk cathartic would produce. A stimulating glyster was immediately thrown up, and a solution of an ounce and a half of Glauber's salts in two ounces of inf. senæ swallowed, which, in little more than an hour, produced so plentiful a discharge, that the belly became soft and easy, and we were perfectly free from all apprehensions of a stricture. Fomentation, poultice, &c. were frequently applied to the tumor, which in three or four days began to subside ; and in about seven or eight, the scrotum was so unloaded, as to permit easy and accurate examination ; by which means we were satisfied, that it contained no testicle. Upon mentioning this circumstance to the patient, he said, that he never had one on that side. This declaration was a solution of all difficulties, and of all the appearances. When all the effects of the blow were removed, there appeared in the groin, just on this side

Q 2

of

of the opening in the abdominal tendon, a testicle of natural size and figure ; which testicle, by being much bruised, had caused all the mischief.

C A S E II.

A Poor man came to St. Bartholomew's hospital, and desired assistance for a swelling in his groin ; for which he had, for a month before, been taking Jesuit's drops and other quack medicines, till he had not a farthing left. Upon removing an adhesive plaster, I found a tumor which was large and painful ; but at the same time so moveable, as to be very unlike any affection of the inguinal glands. The account which the man gave was, that " he had always had a lump in that groin, and never any testicle on that side ; that when young, he had worn a truss for it, upon a supposition of its being a rupture ; that when he came to work for his living, he could no longer bear the uneasiness which the truss gave him, and therefore had left it off for years : that since that time
he

he had never perceived any material alteration in the tumor, nor had it ever given him any trouble, till he had got a clap about two months before; upon the sudden disappearance of which, the lump in his groin became large and painful."

In short, the man had got a hernia humoralis of the testicle in his groin; which, by means of proper treatment, bleeding, cataplasm, and rest, he soon got well of.

C A S E III.

A Middle-aged man came to St. Bartholomew's, for advice for a tumor in his groin.

He was apparently in good health; the tumor was of an oval or egg-like form, indolent when not pressed, perfectly moveable, lay just in the groin, and had by more than one person been mistaken both for bubo and bubonocoele. When handled or pressed rudely in consequence of the latter opinion, it was painful for some hours after; and the pains (to use his own words)

Q₃

always

always shot up into his back. It was on the left side; on which side there was no testicle in the scrotum, nor had there ever been one; but on the right side every thing was as it should be. He said that within two years it had been considerably enlarged; and that it now was become very troublesome to him.

It appeared very plainly to me that the tumor was caused by the left testicle; which testicle was in a diseased state, but very fit for, and very capable of extirpation. I advised the man to submit to the operation, and he had complied; but the late Mr. Griffiths (one of our then assistants) coming into the ward, I desired him to look at the case. Whether he did not attend to all the circumstances, or for what other reason, I know not; but he took it into his head, that it was a tumor of another kind, that might be removed by internal medicine; and dissuaded the man from undergoing what I had proposed: upon which I did not take him into the hospital.

Some months after, the swelling becoming larger and more troublesome, he
applied

applied to St. George's hospital. The gentlemen there gave him the same opinion, and the same advice which I had given him; he submitted, and got a cure, by the removal of a testicle which had never been lower than his groin, and which was now become scirrhus.

C A S E IV.

THE late Mr. Hollingworth desired me to go with him to see a patient in the neighbourhood of Clerkenwell. It was a man about fifty-five years old, who had a large ulcerated cancerous tumor in his right groin, with high callous edges; it always discharged a large quantity of a most offensive gleet; at times it bled profusely, and was always extremely painful.

The patient said, that when first it became troublesome, he had shewed it to two eminent rupture-curers; one of whom said, that it was a piece of caul, and offered, for twenty guineas, to cure him by cutting it out: the other, (more modest, or less
Q₄
hardy,)

hardy,) only fold him two bandages for it; neither of which he could ever wear.

When Mr. Hollingworth carried me to see it, it had just been left by a cancer-curer, who had applied to it an escharotic; and which, by the patient's account, as well as by the appearance of the fore, had made terrible havock.

During all this time, no one who had seen him (and what is still more remarkable) not even the patient himself had remarked, that in that side of the scrotum he had no testicle.

The state, both of the man and of the fore, forbid any chirurgical process; and my advice to him was to dress the fore lightly, and have recourse to tinct. thebaic. for ease: which advice he followed, during the short remainder of his life.

When dead we examined him, and found that the disease consisted in a cancerous testicle lying in the groin; the spermatic vessels of which were varicose, and knotty all the way up to the kidney, having here and there a bladder of yellow serum in the cellular membrane: the lymphatic glands
about

about the vertebræ of the loins were diseased, as was the liver; and on the surface of the right kidney was a collection of offensive sanies.

S E C T. IV.

The Anasarcous Tumor of the Scrotum.

THE scrotum is the common receptacle of both the testicles, and consists of the cuticula, cutis, and what all the anatomists have now agreed to call the dartos; which is a loose cellular membrane, perfectly void of fat, and whose cells or cavities communicate with each other, with the utmost freedom through every part.

As this membrane has no immediate communication with the cavity of the abdomen within the peritoneum, it is plain, that whatever kind or quantity of fluid may be deposited in it, it cannot be derived from the said cavity, even though the patient should labour under a true ascites; but as its cells have a free intercourse with those

those of the general cellular membrane all over the body, they will be liable to be affected by all those disorders which have their seat in that membrane ; that is, by all disorders proceeding from a low impoverished state of blood, from a deficiency of the urinary secretion, or from non-execution of the office of the absorbent vessels ; and consequently, in anasarca and leucophlegmatic habits, will become the seat of a watry extravasation.

This watry swelling of the scrotum, although it is most frequently a symptom of a dropical habit, and very often accompanies both the general anasarca, and the particular collection within the abdomen, called the ascites, yet, even in the latter case, neither is, nor can be, derived from the cavity of the belly, but is confined to the tela cellulosa, which lies on the outside of the peritoneum : the water derived from hence distends the scrotum, in the same manner, and for the same reasons, that it often does the legs and feet. The cells of the dartos being larger and absolutely void of fat, and the skin which covers them being extremely dilatable, and
giving

giving way for a larger influx into this part than into most others, has indeed occasioned its being taken notice of as a particular disease, though it is most properly a symptom only.

This being the case, and the true method of cure consisting in an internal medical process, it has been, I think, improperly ranked among the species of hydrocele; though the nature of the contents will certainly admit the use of the word.

It is indeed a disease, which properly belongs to the physicians; but as it is of some consequence, to be able to distinguish it from other disorders affecting the same, or the neighbouring parts, and as surgeons are often called upon to assist in alleviating some of the inconveniencies which this defluxion produces, it cannot be amiss in this place, to give a short account of it, and of the most proper chirurgical method of attempting its relief.

It is an equal, soft tumor, possessing every part of the cellular membrane, in which both the testicles are enveloped, and consequently is generally as large on one side as on the other; it leaves the skin of its
natural

natural colour ; or, to speak more properly, it does not redden or inflame it ; if the quantity of water be not large, nor the distention great, the skin preserves some degree of rugosity ; the tumor has a doughy kind of feel ; easily receives, and for a while retains the impression of the fingers ; the raphe or seam of the scrotum divides the swelling nearly equally ; the spermatic process is perfectly free, and of its natural size ; and the testicles seem to be in the middle of the loaded membrane. This is the appearance, when the disease is in a moderate degree. But if the quantity of extravasated serum be large, or the disease farther advanced, the skin, instead of being wrinkled, is smooth, tense, and plainly shews the limpid state of the fluid underneath : it is cold to the touch, does not so long retain the impression of the finger, and is always accompanied with a similar distention of the skin of the penis ; the preputium of which is sometimes so enlarged, and so twisted, and distorted, as to make a very disagreeable appearance. These are the local symptoms : to which it may be added, that a yellow countenance,

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nance, a loss of appetite, a deficiency of urinary secretion, swelled legs, a hard belly, and mucous stools, are its very frequent companions.

The cure of the original disease comes, as I have already said, within the province of the physician, and requires a course of internal medicine : but sometimes the loaded scrotum and penis are so troublesome to the patient, and in such danger of mortification, that a reduction of their size becomes absolutely necessary ; and at other times a derivation, or discharge, of the redundant extravasated serum from this part is ordered as an assistant to the internal regimen.

The chirurgical means in use for this end is called in general scarification ; a term, whose precise sense has by no means been settled ; by which it has now and then happened, that a general order being given, and the particular method of executing it being left to the choice of those who have not been sufficiently acquainted with this kind of business, much hazard has been incurred, and considerable mischief done, which might have been avoided.

The

The means of making this discharge are two, viz. puncture and incision : the former is made with the point of a lancet ; the latter with the same instrument, or with a knife.

The generality of writers on this subject have spoken on the two methods in such a manner, that a practitioner, who had seen but little of either, would be inclined to think, that it was a matter of great indifference, which we should make use of ; and that the safety and utility of each were equal : which is by no means the case.

The intention of the use of either is, by a discharge of extravasated serum, to alleviate the present uneasiness ; and, by reducing the size of the scrotum, to render it less troublesome, and less likely to mortify. In some few instances it has indeed happened, that this drain has proved a radical cure of the original disease ; but that has been accidental, and is not in general to be expected. The intention is generally palliative ; and, if the patient lives, is most likely to require repetition : therefore, if there be any difference between the two methods, with
regard

regard either to ease or safety, there can be no doubt which ought to be preferred.

All wounds of membranous parts, in anasarca or dropical habits, are necessarily both painful and hazardous; they are apt to inflame, are very difficultly brought to suppuration, and will often prove gangrenous in spite of all endeavours to the contrary. But the larger and deeper the wounds are, the more probable are these bad consequences. Simple punctures, with the point of a lancet, are much less liable to be attended by them, than any other kind of wound; they generally leave the skin easy, soft, cool, uninflamed, and in a state to admit a repetition of the same operation, if necessary. Incisions create a painful, crude, hazardous sore, requiring constant care. Punctures seldom produce any uneasiness at all; and stand in need of only a superficial pledgit, for dressing.

Now, although there is so very material a difference in the symptoms and trouble attending the two methods, yet is there none in their effect: the communication of the cells of the dartos with each other is so free, through

through every part of it, that punctures made with the fine point of a bleeding lancet, into the most superficial of them, will, as certainly and as freely, drain off all the water, as a large incision, without any of its inconveniences or its hazard. Neither the one nor the other will cure the original disease, unless by mere accident: they are both made, with a design to cure only the local one. The same habit and constitution remaining, the same effect will in general follow, and the same relief be again necessary. The ease, the freedom from bad symptoms, or from danger, and the state in which the parts are left, render one method practicable at all times, and capable of being repeated as often as may be thought necessary: the fatigue, pain, confinement and hazard which most frequently attend the other, make one experiment in general as much as most people chuse to submit to, or indeed have an opportunity of complying with.

CASE

C A S E V.

A Man about fifty-five years old, who had lived freely, was afflicted with an anasarcaous tumor of the belly, legs, thighs, scrotum and penis, accompanied with the general symptoms which most frequently attend such complaints, viz. prostration of appetite; little, and that high-coloured urine; a hard belly; and a bloated face.

He had taken many medicines by the direction of a physician in the country, and more than one quack-remedy since he had been in London; but to no purpose: the watry load increased daily, and the swelling of the penis and scrotum became so troublesome, as to prevent his wearing breeches.

In these circumstances, a person who attended him in the capacities of apothecary and surgeon, proposed to draw off the water by an incision on each side of the scrotum; to which the patient consented. The incisions were made, and in a few hours the scrotum was empty and flaccid.

At the distance of five days from this operation, his surgeon died, and I was desired to visit him.

I found him in bed, with a painful, foul, undigested sore, on each side of the scrotum; which, though it had at first been emptied by the incision, was now again considerably loaded with serum, but at the same time hard and inflamed: the edges of the wounds were livid, the discharge from them was a discoloured gleet; and the pain was so great, that the man could get no rest; his pulse was frequent, hard and small; his breathing not perfectly free; his urine little, and high-coloured; his thirst very troublesome; his belly hard and tight: and having taken an opiate every night from the time of the operation, he had not had a stool for three days past.

I dressed the incisions with a soft digestive; and covering the whole scrotum with a warm poultice, tied it up in a bag truss; directed a glyster to be thrown up immediately, and a purge to be taken the next morning: from which in the following
day

day he had four or five stools, and by which his respiration was relieved, and his belly rendered softer.

Next day the inflammatory hardness of the scrotum seemed to be going off, but to be succeeded by an emphysematous kind of tumefaction; and in four days from that of my first visit to him, the whole bag was in a state of mortification, notwithstanding the constant use of fomentation, cataplasm, &c.

Having already taken a large quantity of medicine of different kinds, it was with much difficulty that I could prevail on him to hear of any more: but upon making a true representation to him of the state of his case, and of his imminent hazard, he consented to take the bark, with some confect. cardiac. and tinct. rad. serpent. every three or four hours.

But putting a tea-spoonful of brandy into each dose, it kept upon his stomach. At the end of three days, the pain and foreness were considerably lessened; and on the sixth he got a little quiet sleep without any opiate: on the ninth the mortified

parts seemed inclined to suppurate, and the gleet was small, in comparison of what it had been; on the twelfth there was an appearance of tolerable good matter from the edges; on the fifteenth a laudable supuration was established, and the mortified parts were every where loose and falling off. Instead of a small quantity of high-coloured urine, he now made what was nearly equal to his drink, and that very well-conditioned; and the watry extravasation in his legs and thighs was considerably diminished.

He now began to nauseate the bark, in the form in which he had hitherto taken it; it was therefore changed for another, which he took at larger intervals; and, to assist his urinary discharge, his apothecary gave him an infusion of the cineres genistæ and horse-radish, which answered the purpose very well.

The whole scrotum and dartos cast off in a large slough, and left the tunicæ vaginales of both testicles as bare and clean as if they had been dissected: these were soon covered by an incarnation, which supplied the
the

the place of the scrotum tolerably well ; and by persisting in the use of the same remedies for a few weeks longer, he was restored to perfect health.

C A S E VI.

A Man, not exceeding forty, who had drank freely of spirituous liquors, was thereby brought into the same circumstances as the patient in the preceding case ; that is, his countenance was yellow and bloated ; his legs, thighs, scrotum and penis, loaded with a watry tumor ; he had little or no appetite ; and made a very small quantity of high-coloured urine.

Internal remedies having been ineffectually tried for some time, he was advised to have an incision made on each side of the scrotum ; by means of which, all the swelling, both of it and of the penis, was immediately removed, and the patient much pleased.

On the fourth day from the operation all discharge of serum ceased, and the wounded part swelled, inflamed, and be-

came very painful. Fomentation, cataplasm, and proper digestive dressings were used, but without any relief from the pain, or any beneficial alteration in the appearance of the fores. On the sixth day from that of the incision, I was desired to meet the gentleman that had the care of him. I found that the hard inflammatory swelling, which a day or two before had occupied the whole scrotum, was now gone off, and that it was become flabby and livid, especially about the incisions.

I proposed taking the cortex, but it was not complied with; nor do I know what the medicines were which he did take, neither myself nor his attendant surgeon being consulted on that head. Warm spirituous fomentations, with proper poultice and dressings were continued, but to no purpose. I saw the patient each morning, for four days; during which, he got little or no rest, and complained of great pain and burning heat within his belly: the watry extravasation in his thighs and legs increased daily; the whole scrotum and skin of the penis became black, and
mortified,

mortified, as did also the part of the pubes; and, on the eleventh day from that on which the incision was made, he died.

C A S E VII.

A Man, about forty-five years old, by name Corby, who was a patient in St. Bartholomew's hospital on another account, shewed me a swelling on the left side of his scrotum. It was large, full, tight, and had all the symptoms and appearances of an hydrocele of the tunica vaginalis, viz. the fluctuation of the fluid, the freedom of the upper part of the process, and the concealment of the testicle. I thought myself so clear in the true nature of the disease, that, without any scruple, I pierced it with a small trochar in the lower and anterior part, and thereby let out about two ounces of limpid water; but could by no means draw off any more, though I pressed a probe up through the cannula, and used every other means proper to obtain it.

I withdrew the cannula, and examined the swelling again; which was but little

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diminished by what had been done : but though it was not much decreased in size, it was considerably altered in appearance. I could now very plainly distinguish the testicle, and was convinced, that the whole disease was confined to the cells of the dartos. In short, it was (what I had never seen before) an anasarca of that membrane, on one side only ; having a certain quantity of the water in one cyst or bag, and the rest diffused through the cells in the usual manner : the latter made all the tumefaction, which remained after tapping ; and the former had concealed the testicle.

Being now truly satisfied of the nature of the case, I made an incision, about an inch long, through the scrotum into the loaded dartos ; intending thereby to drain off the water, and, by procuring a supuration, to cure the disease. Into the incision I put a little dry lint, and tied the scrotum up in a bag-truss.

To my great astonishment, the next day my dresser told me, that Corby's scrotum
was

was swelled to a great size, and that the incision was already livid. I went to the hospital, and found it so, I ordered the part to be fomented, and wrapped up in a warm poultice; and that the man should take the cortex freely, till the physician should see him.

In three days time, the whole scrotum, and skin of the penis was completely mortified; and a considerable part of the pubes altered and vesicated: his pulse was quick and small; he complained of a burning heat in his belly, and bladder; his thirst was intense; and his extremities cold.

For several days I was convinced, that each would be his last: his fomentation, cataplasm, and dressings were continued; the doctor ordered him a dram of the bark, as often as his stomach would bear or keep it, in a julep, well impregnated with volatile salt; and the poor man earnestly begged to be allowed a pint of porter a day; which he had. At last, in about three weeks time, the whole scrotum, the integuments of the penis, and some part of the pubes cast off, leaving the corpora cavernosa,

vernosa, and the tunica vaginalis, as clean as if they had been dissected. The man got well.

More of the same kind of cases might be produced, in which the trouble and hazard attending large incisions of the scrotum, in dropfical cases, have been great ; but the similarity of them renders it unnecessary. I shall therefore only add, that from the simple puncture I have seldom met with either ; and that I have as seldom known them fail to answer the purpose for which they were intended, viz. a temporary discharge of serum, from the cellular membrane.

S E C T. V.

IF we consider the preceding complaint as merely symptomatic, and do not rank it among the different kinds of hydrocele, there will then remain only three, viz.

1. That which consists of a collection of water in the cells of the tunica communis,
or

or cellular membrane, enveloping and connecting the spermatic vessels.

2. That which is formed by the extravasation of a fluid, in the same coat as the former, but which, instead of being diffused through the general cellular structure of it, is confined to one cavity or cyst, in which all the water constituting this species of disease is contained; the rest of the membrane being in its natural state.

3. That which is produced by the accumulation of a quantity of water, in the cavity of the tunica vaginalis testis.

These three are distinct, local, and truly within the province of surgery. They may accidentally be combined or connected with other disorders, but not necessarily; and are frequently found in persons whose general habit is good, and who are perfectly free from all other complaints.

*The Hydrocele of the Cells of the Tunica
Communis.*

IN the anatomical account of the parts, which make the seats of the different kinds of hydrocele, it has been observed, that the spermatic vessels, from their origin quite down to the insertion into the testicle, are enveloped in, and connected together by, a membrane, called formerly tunica vaginalis vaforum spermaticorum, but now (more properly) tunica communis. That this membrane so enveloping the spermatic vessels has no one particular cavity, (as its old name would seem to imply;) but is merely cellular, as either the inflation of air, or the extravasation of a fluid, will always prove. That while it is within the cavity of the belly, its cells are lax and large; and when it has passed out from thence, and has formed a part of the spermatic process, by enveloping its vessels, its cells are rather smaller, and the membrane composing them firmer. That
it

it is included within that thin expansion of muscular fibres, called the cremaster. And that a great number of lymphatics, passing from the testicle to the receptaculum chyli, are always to be found in it.

An attentive consideration of these circumstances in the structure of this part will shew us, why either obstruction or breach in the lymphatic vessels, considerable pressure by means of diseased indurations within the abdomen, or a morbid state of the parts which should receive the lymph from the vessels of the spermatic chord, may induce the disease in question; and also, when it is produced, that its appearance, and the nature of the extravasation, must make the term *cellular* a very proper one, as expressive of its true state.*

When

* “ J’ai souvent vû des tumeurs aqueuses, grosses comme
 “ des grains de raisin, placées d’espace en espace le long
 “ du cordon spermatique, accompagner une veritable
 “ hydrocele placée sur le corps du testicle.” Le Dran.

The first part of this paragraph is a just and true description of the hydrocele of the cells of the tunica communis, when not much distended: but if by “ une veritable

When the disease is simple, it is perfectly local; that is, it is confined entirely to the membrane forming the tunica communis; and does not at all affect, either the dartos, the tunica vaginalis testis, or any other part.

It is a complaint which does not give a great deal of trouble, unless it arrives to a considerable size; and, being by no means so frequent as either of the other two kinds of hydrocele, it is in general but little known or attended to. With some, it passes for a varix of the spermatic chord; with others, for the descent of a portion of omentum, which having contracted an adhesion cannot be returned. Thus, its true nature not being in general rightly understood, and it giving but little trouble or uneasiness while it is within moderate bounds, and neither hindering any necessary action or faculty, they who have it are most frequently advised to be contented with a tolerable hydrocele," Mr. Le Dran means that of the tunica vaginalis, his description of it, as "*une tumeur aqueuse, placée sur le corps du testicule,*" is very inexpressive, inadequate, and likely to convey an erroneous idea.

with

with a suspensory bandage, and find very little inconvenience from it.

Sometimes it arises to so large a size, and gets into such a state, as to become an object of surgery, and to require our very serious attention.

In general, while it is of moderate size, the state of it is as follows. The scrotal bag is free from all appearance of disease; except that when the skin is not corrugated, it seems rather fuller, and hangs rather lower on that side than on the other, and if suspended lightly on the palm of the hand, feels heavier: the testicle, with its epididymis, is to be felt perfectly distinct below this fulness, neither enlarged, nor in any manner altered from its natural state: the spermatic process is considerably larger than it ought to be, and feels like a varix, or like an omental hernia, according to the different size of the tumor: it has a pyramidal kind of form, broader at the bottom than at the top: by gentle and continued pressure it seems gradually to recede or go up, but drops down again immediately upon removing the pressure; and
that

that as freely in a supine as in an erect posture: it is attended with a very small degree of pain or uneasiness; which uneasiness is not felt in the scrotum, where the tumefaction is, but in the loins.

If the extravasation be confined to what is called the spermatic process, the opening in the tendon of the abdominal muscle is not at all dilated, and the process passing through it may be very distinctly felt; but if the cellular membrane which invests the spermatic vessels within the abdomen be affected, the tendinous aperture is enlarged; and the increased size of the distended membrane passing through it, produces to the touch, a sensation, not very unlike that of an omental rupture.

While it is small it is hardly an object of surgery; the pain or inconvenience which it produces being so little, that few people would chuse to submit to an operation to get rid of it; and it is very seldom radically curable without one: but when it is large, or affects the membrane within the cavity, as well as without, it becomes an apparent deformity, is very inconvenient
both

both from its size and weight, and the only method of cure which it admits is far from being void of hazard; as must appear to every one who will consider, or who is at all acquainted either with the nature of lymphatic extravasation or absorption, or with the frequent consequences of wounds inflicted on parts merely membranous.

C A S E VIII.

A Man about fifty-five desired me to look at a rupture, under which he said he had laboured for several years. For the greatest part of that time he had worn a steel truss, which had given him little or no uneasiness, but had never kept his rupture up. During all this time he never had any symptoms of obstruction in the intestinal canal; nor had the tumor ever increased in size, or altered its appearance, until within the last three or four months, when he had been persuaded to change his truss for a bandage without iron, and to make use of an external application, which was said to be infallible.

What the application was I know not ; but its effect was an excoriation of the groin and parts about : the bandage was made of dimity, had a large hard bolster, with three or four buckles, and was buckled on very tight.

He said, that the pain it had caused had been great ; but that he had chearfully submitted to it, having been assured that the medicines, assisted by the pressure, would soon shrink up a piece of caul which was in the scrotum, and thereby free him from all possibility of a return of his disease ; and that, after that was done, he might leave off all kind of bandage, and do as he pleased.

He had now made the experiment, till the pain was so great, and the parts so swelled, that he could endure it no longer. The scrotum was much inflamed, and swelled ; the groin excoriated ; the testicle enlarged, but not hard ; the spermatic process quite up to the belly, full, tight, and so exquisitely painful, that he could not bear the most gentle handling ; he had no obstruction on his going to stool ;
nor

nor any symptom of the confinement of any part of the intestinal canal. The principal information which I could get was from his own account; for he could not bear the slightest touch. From this it appeared to me, that whatever might be the true state of the case, it was very clear, that the first thing to be done was to obtain ease. I therefore put him to bed, bled him freely, ordered him to have a glyster thrown up immediately, and to take two spoonfuls of a purging mixture every two or three hours, until he should have a free discharge per anum; and then to take a grain of extract. thebaic. I wrapped up the scrotum, and covered the groin and pubes with a warm soft poultice, and put on a bag truss.

He passed the day in a very uneasy restless state; and in the evening, finding his pulse not at all lower, nor his pain less, (his purging mixture having done its duty) I took away fourteen ounces more of blood, and ordered his opiate to be taken again, and repeated at the distance of every six hours. Forty-eight hours passed over, during which time he took seven grains of

opium, before he could get sleep or ease; and when he obtained the former, it did not last more than three or four hours, (an effect I have several times seen, in the exhibition of large and frequently-repeated doses of opium, given either to appease pain, or to quiet a phrenzy.)

When he awoke, he was easier, and seemed to be much refreshed; his pulse was softer, his perspiration free, and the parts less inflamed, and less painful; his poultice was renewed, after fomentation; and he was directed to take a draught of the common emulsion every six hours, with some manna and nitre in it; by which means he had, in the course of the next day, two plentiful discharges by stool.

By these means, within the space of six or seven days, all his inflammatory symptoms were removed; and the parts reduced to nearly the same state in which they were when he put on his dimity bandage: that is, the testicle was of its natural size, but the spermatic process large and full, though soft, and indolent, and feeling very like to a small omental rupture.

For

For greater certainty, I kept him in bed a day or two more; and confined him to the same low regimen, with an open body.

The spermatic process continued in the same state. I attempted to reduce the apparent rupture, but without success; though there was no reason to think that there was the least stricture made on it by the tendon of the abdominal muscle. I could indeed make a small part of it recede, but even that did not pass the opening at all like a piece of omentum; it did not give any of that sensation to my fingers, nor produce that kind of noise, which the return of a rupture into the abdomen generally does; and the moment I removed my fingers, it fell down again, although the patient was in a supine posture. In short, I made attempts for reduction so long, and so often, that I was perfectly satisfied that the prolapsed part was not reducible, (at least by me.)

It now gave him no pain, nor uneasiness of any kind; but he had suffered so much from the pressure of his bandage, and was so satisfied (from the successful attempts

which I had made) that his rupture was not capable of being reduced, that he contented himself with a common suspensory bag, and found not the least alteration in it, for the space of three years. At the end of this time he was attacked with a peripneumony, and died.

I obtained leave to examine his body, and found, that what I had taken for a portion of omentum was a collection of water in the cells of the tunica communis of the spermatic vessels, on the outside of the cavity of the abdomen; that nothing else had passed through the tendon of the oblique muscle; and that the testicle, and tunica vaginalis, were perfectly unaffected.

Notwithstanding the account which this patient had given of himself, and of his having frequently reduced his rupture, I am satisfied that he never had one; and that his disease had, from the first, been what it at last appeared to be. There was no sign of a hernial sac; and though the return of such sac back again into the belly, after it has been in the groin or scrotum, is a thing much talked of by late writers, I do not believe that it ever happened.

This

This steel truss did not press hard enough to produce any mischief, and was thought not to have kept his rupture up; and the symptoms, under which I found him labouring, were occasioned merely by the dimity bandage, substituted in the place of his truss; which having large hard bolsters, and being buckled on very tight, pressed violently on the spermatic vessels and loaded membrane.

C A S E IX.

A Healthy middle-aged man applied to me one day, while I was dressing the hospital, and shewed me a considerable swelling in his scrotum. I examined it, and told him I believed it to consist of water. He replied, he knew it; for that Mr. Baker, then one of the surgeons of the Westminster Infirmary, had a few days before drawn some from it by puncture with a lancet. Upon hearing this, I examined it again, imagining that I might possibly find it to be blood: (a circumstance which now and then happens, after

tapping a common hydrocele :) but still it appeared to me to have all the marks of a tumor from water, and to be principally in the spermatic chord. The dartos was indeed a little thickened by the insinuation of a small quantity of a fluid into some of its cells, but the testicle was much too plainly distinguishable, for the case to be taken for a hydrocele of the tunica vaginalis ; nor was the upper part of the process in that free state in which it is most frequently found, in that disease. I took him into the hospital, and ordered him to keep his bed, till I saw him the next day ; at which time I passed a small trochar into the anterior part of the tumor a little higher than usual. At first a limpid serum flowed freely ; but that soon stopped, and I was necessitated to pass a probe frequently up the cannula, to get away the remainder ; neither could I, either by that means, or by pressure, reduce the scrotum to a proper size, or remove the fulness of the process above. I ordered the part to be fomented night and morning, and

and the whole scrotum and groin to be covered with a soft poultice; and that the man should take a solution of manna and Glauber's salt the next morning. The applications were continued, and the purge repeated every second or third day, for a fortnight; at the end of which time, the swelling was as large as when I first saw it.

During this interval of time, I frequently examined the parts; and always found the testicle much more free, and independent, than I had ever felt it in a hydrocele of the tunica vaginalis. It appeared to me, from the kind of fluid which had already been twice let out, and from the present appearance of the part, that no cure would be obtained without laying the whole open; but as I was by no means certain, what was the precise nature of the disease, or in what state the parts might be found, I informed the man that it might possibly become necessary to remove that testicle. To this he consented; and I made an incision, through the skin, from the groin down as low as the testicle; intending, if I
had

had found the process diseased, to have castrated.

The incision was followed by a large discharge of water, not only from the lower part, where there seemed to have been a considerable collection in one cavity, but from the surface of the whole cellular membrane inclosing the spermatic vessels. Finding this membrane no other way diseased than by the watry distention of its cells, I went no farther with my operation, but filled the incision lightly with soft lint. For three or four days the discharge of serum was large; but that ceasing, a plentiful suppuration succeeded; which was followed by a perfect subsidence of the whole tumor; and in due time the wound healed, and the man obtained a cure.

C A S E X.

A Gentleman about thirty-five years of age, came out of the North, to London, for the assistance of Mr. William Sharpe, in the case of a large tumor of the scrotum;

scrotum ; which, he said, had been coming five or six years.

The account which he gave of it was, that at first it was small, easily (as he thought) put up, but came down again immediately ; which he attributed to his not having been accommodated with a proper bandage ; that at the end of about nine months, or rather more, he found that he could not reduce it at all, whatever pains he took, or whatever posture he put himself into ; and that from this time, its increase had been daily more apparent. The case was singular ; and Mr. Sharpe desired me to see it with him.

The scrotum was of a most prodigious size ; it hung more than half way down to the patient's knee ; it was very ill supported, by an awkward bag of his own making ; and, toward the lower part, was much ulcerated, by neglected excoriations. Different parts of the tumor felt very differently ; in some places, it was hard ; in some, soft ; and in others, a thin fluid was palpably discoverable. The spermatic process was large and full, quite up to the groin ;

groin; the aperture in the abdominal muscle was considerably dilated by it; and when the patient coughed, the whole tumor was manifestly distended: his stools were regular, his appetite good, his urine proper in quality, but very deficient in quantity; his sole complaints were, a pain in his back (proceeding as we suppose from the weight of the scrotum,) and a languor and dispiritedness, which he had not been accustomed to, and could not account for.

The feel of some part of the tumor was like that of an intestinal hernia, in which there is no stricture, and the gut does its office in scroto; but other parts of it were so unlike to this, and the upper part of it toward the groin was so large, and so hard, that we remained in great doubt concerning the true nature of the contents.

When we had sufficiently examined the tumor in an erect posture, we put the patient into a supine one, which produced a considerable alteration in the appearances: the tumor became manifestly less, and softer;

softer; and seemed, by retiring, to occasion a large swelling on that side of the belly, just above the os ilion, tending backward toward the region of the kidney. Upon continued pressure, the contents of the scrotum seemed to recede still more; and still as they receded, the swelling on the side of the belly increased. When we had got up to a certain point, we could get up no more; but during our endeavours to return as much as we could, we clearly discovered that the tumor in the scrotum, and that within the belly, were produced by the same body; that there was a palpable and free fluctuation, from the one to the other; and that the harder parts were mere indurations, and thickenings of the integuments and common membrane.

The burden was so great, that the patient was desirous of being eased, at any rate. We communicated to him our opinions, our suspicions, fears, and uncertainty; and told him what hazard might possibly be incurred, by acting according to the former, if we should be mistaken; but

but he being determined to endeavour to obtain relief, at all events, and we being prepared, as well as we could, for whatever might happen, made a small incision into the lower, and anterior part of the tumid scrotum.

As soon as we had divided the skin, a quantity of clear limpid water burst forth, of which we caught above a quart; and then the opening was stopped, by something which thrust itself out, and looked like a piece of cellular membrane loaded with water. We cut a part of it off, and gently pushed back the rest with a probe; while by moderate and continued pressure, we drained off eleven Winchester pints of water.

When we could get no more away, we would have enlarged the opening; but our patient found himself so lightened, and so easy, that he would not permit it.

The scrotum, it is true, was considerably lessened; but in no proportion to the quantity of water which had been drawn off: the whole spermatic process, from the testicle quite up to the belly, was still large and full;

full; and the abdominal opening still dilated by a large body passing through it; but, as the swelling in the belly could not now be felt in any posture, and as the scrotum was reduced to such a size as to be easily supportable by a bag truss, he determined to wait the effect of what had already been done. In little more than a month we saw him again. The tumor in the side of the belly was as apparent, the fluctuation as palpable, and the burden as great as when we first saw him. His health was still good in general; but his face appeared to me to be more pale and wan, and he complained still more of thirst and languor.

As we were now sure of the nature of the contents, we divided the whole scrotum from the bottom upward. The lower part was formed into a cyst, or bag, made by the pressure of the water, which was discharged upon the first introduction of the knife; but all the rest of the tumor was formed by the diffusion of serum through all the structure of the tunica communis, the cells of which were all much enlarged with it, quite up to the groin; the testicle being
very

very distinct, and free from disease. The serum oozed freely from all parts of this membrane by gentle pressure; and as it seemed to subside considerably thereby, we meddled no farther, but contented ourselves with filling the incision lightly with dry lint, and suspending the scrotum in a bag truss.

During the first two or three days, the discharge of water was constant and plentiful; and the sore was (as might be expected) crude and undigested; but without any of that inflammatory hardness and swelling, which wounds, made in such parts, in healthy sanguine people, generally have; on the contrary, the lips were flaccid, and soft: it is true, he was perfectly free from fever or pain, and, except the circumstances just mentioned of thirst and languor, he had no apparent disorder; but they were great and troublesome. The discharge of water continued large, and his wound neither digested nor inflamed; nor did it wear any the least appearance of gangrene, or mortification: his languor and anxiety increased daily; and on the fourteenth day from that
of

of the operation, he died; the sore still wearing the same face.

Upon opening his body, we found all the cellular membrane which invested the spermatic vessels within the abdomen loaded with water, and distended in a very irregular manner, from the origin of the said vessels quite down to the opening of the oblique muscle; at this place it was contracted into a round, or rather a flattish body, of less size, but still so large, as to dilate the opening in the tendon considerably. Below this it was again expanded and distended with water, through all its cells; but the testicle, and its tunica vaginalis, were in a sound state, and perfectly unaffected by the disease.

Was it the large discharge of serum, or the free division of membranous parts which occasioned this gentleman's death? For my own part, I am inclined to attribute it to the former; for though an incision, made in parts of such structure, and so diseased, does sometimes prove fatal, yet the parts themselves in such case generally shew, by a gangrenous or mortified appearance, what share such operation has in the patient's destruction.

In this case, there was indeed no digestion, nor any of that inflammation, which always precedes suppuration; nor, on the other hand, was there any appearance like gangrene or sphacelus; but his manner of dying was very much like that of those who are destroyed by large hæmorrhages.

S E C T. VI.

The encysted Hydrocele of the Tunica Communis.

THIS species of Hydrocele has its seat in the same part as the preceding, viz. the tunica communis, or cellular membrane, which invests the spermatic vessels; with this difference, that, in the former, the water is diffused in general through all the cells of the membrane; whereas in this it is contained in one cavity only. If any of the three kinds of hydrocele deserves the name of encysted, it is this. The water which constitutes it being all contained in a bag, formed in the same manner as all the coats of all encysted tumors are, viz. by
mere

mere pressure, and condensation of the common membrane.

It is a complaint by no means infrequent, especially in children. It was very well known to many of the ancients, and has been very accurately described by some of them;* but later writers have often mistaken it

* By Albucasis, by Celsus, Paulus Ægineta, and others. The last has particularly distinguished this kind of hydrocele, from that of the tunica vaginalis, by a very just description of both: “ Si humor in membrana supernata
“ coierit, tumor alterius testiculi imaginem exhibet.
“ Quibus in Erythroide tunica humor comprehensus est
“ tumor rotundus paululum, et ovi modo longiusculus:
“ his testiculus in conspectum non venit, ut qui undi-
“ quaque fit implicitus.”

The former of these descriptions our countryman Peter Lowe, has most probably copied, when he says, “ It is
“ sometimes inclosed in a membrane, and appeareth like
“ a third testicle.”

Heister speaks of this species of hydrocele as very rare, only quotes the authority of others to prove its existence, and seems in some measure to confound it with a collection of fluid in a congenial hernial sac.

Page 842, he says, “ Quandoque tamen etiam, ut non-
“ nulli autores referunt, in peritonæi processu, supra testi-
“ culum, liquor præter naturam colligitur: imo etiam in
“ productione peritonæi, ab intestinorum hernia orta, co-
“ piofum liquorem in cadavere, sectione aliquando depre-
“ hendi.” And in a note on this passage he adds, “ Weide-
“ mannus, nec non Boerhavius, itemque Garengéotus et
“ Dranius memorant istiusmodi hydroceles casus quando-

it for, and represented it as a species of wind-rupture, or pneumatocele; a disease existing in their imaginations only. It most frequently possesses the middle part of the process, between the testicle and groin, and is generally of an oblong figure; whence it has by some people been compared to an egg, by others to a fish's bladder. Whether it be large or small, it is generally pretty tense, and consequently the fluctuation of the water within it, not always immediately or easily perceptible; for which reason it has been supposed to contain air only. It gives no pain, nor (unless it be very large indeed) does it hinder any necessary action. It is perfectly circumscribed; and has no communication, either with the cavity of the

“ que observari; ubi digito contingi testiculus queat; at-
 “ que tunc supra testiculum in peritonæi processu tumo-
 “ rem et humorem consistere. In enterocele autem con-
 “ trarium quandoque usu venire, propterea quod intestina
 “ interdum, ut supra monui, usque in tunicam vaginalem,
 “ per septum illud naturale, quod testiculum a parte su-
 “ periori processus peritonæi distinguit penetraverunt.”

“ Sed rari admodum sint necesse est, ad quos modo lau-
 “ dati autores provocant casus. Ego sane quanquam plu-
 “ rimos homines enterocele, non minus quam hydrocele
 “ laborantes sanaverim, nunquam tamen adhuc ita rem
 “ inveni,” &c.

belly

belly above, or that of the vaginal coat of the testicle below it. The testis and its epididymis, are perfectly and distinctly to be felt below the tumor, and are absolutely independent of it. The upper part of the spermatic process in the groin is most frequently very distinguishable. The swelling does not retain the impression of the fingers; and when lightly struck upon, sounds as if it contained wind only. It undergoes no alteration from change of the patient's posture; nor is affected by his coughing, sneezing, &c. and has no effect on the discharge per anum.

These marks (while the disease is simple and uncombined with any other) are sufficient to distinguish it by, from all others which may affect the same part; but it sometimes happens, that the present complaint is found connected either with a true hernia, or with a hydrocele of the tunica vaginalis; by which the case is rendered complex, and less easy to be understood.

In this, as in every other case where, from a complication of symptoms and appearances, a combination of diseases may be suspected,

there is but one method of investigating the truth ; which is, to consider carefully what disorders the part aggrieved is naturally liable to ; what the distinct symptoms and appearances of each of those are ; and what are the effects of the present complaint. The two diseases with which this kind of hydrocele is most likely to be combined are, as I said before, an hydrocele of the tunica vaginalis testis, and a true hernia ; the parts within the groin, the spermatic process, and the scrotum being the seat of all three.

One mark, or characteristic of an hydrocele of the tunica vaginalis testis is, that it possesses and distends the inferior part of the scrotum ; and that the testicle being nearly, (though not absolutely) surrounded by the water, it very seldom happens, that the former can be clearly and plainly distinguished by the fingers of an examiner ; whereas in the encysted collection, in the membranes of the chord, the tumor is always above the testicle, which is obvious and plain to be felt below it.

Another circumstance worth attending to is, that although the fluid in a hydrocele of
the

the vaginal coat does so nearly surround the testis as to render it often not very easy to be distinguished, yet the different parts of the tumor have always a very different feel: for instance, in all those points where the vaginal tunic is loose, and unconnected with the tunica albuginea, the tumor is soft and compressible, and gives a clear idea of the contained fluid; but when these two coats are continuous, or make one and the same membrane, and have no cavity between them (which is the case on the middle and posterior part) there will always be found a hardness and firmness, very unlike to what is to be found in all those places, where the distance * between the two tunics leaves room for the collection of a fluid: now the hydrocele of the chord being formed in the mere cellular membrane of it, is the same to the touch in all the parts of the tumor, and feels like a distended bladder through every point of it.

* “Tunica Erythroides naturæ nervosæ, in gibba quidem et anteriore e testiculo libera est, in concava et posteriori ipsi adherescit ex peritonæo originem trahens.”

Paulus Ægineta.

The free state of the upper part of the spermatic process, while the tumor is forming below; the gradual accumulation of the fluid, and consequently the gradual growth of the swelling; the indolent and unaltering state of it: its being incapable of reduction, or return into the belly from the first; its being always unaffected by the patient's coughing, or sneezing; and the uninterrupted freedom of the fæcal discharge per anum, will always distinguish it from an intestinal hernia; and he who mistakes it for an omental one, must be very ignorant, or very heedless.

Now, although there may not always be such external marks as may, to the eye, explain the combination of these diseases with each other; yet the particular seat and symptom of each being known, and the sensations which they produce to the fingers of an intelligent examiner being well understood, when such mixed characteristics are found in the same subject, we may reasonably conclude the case to be complex, and act accordingly.

I have indeed seen an encysted hydrocele, situated so high toward the groin, as to
render

render the perception of the spermatic vessels very obscure, or even impracticable; but then, the state and appearance of the testicle, and the absence of every symptom proceeding from confinement of the intestinal canal, were sufficient marks of the true nature of the complaint.

Infants are much more subject to this disease than adults; though it often affects the latter.

In young children, it frequently dissipates in a short time, especially if assisted by warm fomentation, and an open belly.

If it does not disperse, that is, if it be not absorbed, the point of a lancet will give discharge to the water; and, in young children, will most frequently produce a cure: but in adults, the cyst formed by the pressure of the fluid does sometimes become so thick, as to require division through its whole length; which operation may in general be performed with great ease, and perfect safety: I say in general, because it is most frequently so; though I have seen even this, slight as it may seem, prove trouble-

troublesome, hazardous, and fatal. Of such consequence are wounds in membranous parts in some particular habits.

C A S E XI.

A Lad about sixteen years old was taken into St. Bartholomew's hospital, with a complaint which he had been told was a rupture.

The tumor was large, of an oblong figure, began just below the exit of the spermatic vessels from the belly, and extended to the bottom of the scrotum; but in the middle of it was a depression, or stricture, which seemed to divide it nearly into two equal parts. The upper part was so high, that I could not feel the spermatic process at all satisfactorily; and although there was palpably a fluid in the whole of the swelling, yet the upper and lower parts of it did not seem to communicate with each other; at least the fluctuation through them was not discernible. As he had never had any symptom of a true hernia, and as the account he gave of the gradual formation of the tumor

joined

joined to the fluctuation, &c. convinced me that it was principally if not totally water, I pierced the lower part carefully, and drew off nearly half a pint of yellowish serum ; by which means the scrotum became immediately empty and rugous, and the testicle clearly distinguishable ; but the upper part of the swelling remained as large and as tense as before, nor could I by any means obtain a drop of fluid more from below.

The next day I ordered him a brisk purge, which operated well ; and two or three days after, being satisfied that the intestinal canal could have no share in the complaint, I thrust a lancet into the anterior part of the upper tumor ; by which means a quantity of limpid serum was discharged, and the whole swelling immediately disappeared, leaving the spermatic vessels free, and easily distinguishable.

In a few days he left the hospital ; and at the end of a year, or a little more, he came to me again, with the lower part of the scrotum full, but without any appearance of the tumor above. In short, his former state consisted of a complication of the encysted hydrocele

hydrocele of the spermatic chord with that of the tunica vaginalis testis ; the former was cured by the first puncture, the latter was now as full as ever.

Considering the lad's age and temperament, I advised him to submit to the operation for the radical cure by incision ; which operation was performed, and he got well in about seven weeks, nor has had any return of either complaint since.

C A S E XII.

A Man about thirty-five, who had for some years been troubled with a hydrocele of the tunica vaginalis, which had often been emptied by puncture, came to me for advice.

The swelling in the scrotum, he said, was now about one third of the size it used to be of, when he had been accustomed to have it tapped : it was not tense, was of an irregular figure, and plainly contained a fluid. But it was not on account of this tumor that he applied to me.

Within two months past he had discovered another small swelling, higher up towards

wards his groin, perfectly distinct from the lower one: it was about the size of the largest French walnut, of an oblong figure, absolutely indolent, very tense, and left the spermatic process, at its exit from the abdomen, perfectly free.

From the appearance which these tumors made, and from the patient's account, I made no doubt of the nature of the case, viz. that the upper one was made by a collection of water, in a cyst, formed in the cellular membrane which makes the tunica communis of the spermatic vessels; and that the lower one was a true hydrocele, of the tunica vaginalis testis.

Upon this presumption, I pierced the upper one with a lancet; and let out a small wine-glass full of clear limpid serum. The tumor immediately subsided, and left the whole spermatic process free; but the lower swelling was not at all affected by what had been done above. The puncture was well in a day or two; and the hydrocele of the vaginal coat not being full enough to be at all troublesome, he would not permit me to meddle

meddle with that. At the end of about nine months he sent for me; his hydrocele was full and large, but he had not the smallest appearance of the tumor in the process. The water was let out by puncture, as usual; as it has been several times since; but he has never suffered any return of the collection in the process.

C A S E XIII.

A Lad about fourteen years old was brought into St. Bartholomew's hospital for a rupture; which a surgeon (who had seen him at home) had told his friends, was not in a situation to admit delay; and it being my week for accidents, I was sent for immediately. I found a large tumor, full, and tight, possessing the whole spermatic process and scrotum, from the groin quite down to the testicle; which was independent of it, and perfectly distinguishable. As he lay on his back, it was perfectly indolent; but in an erect posture, or in the action of stooping, he complained of pain: it was not tender to the touch, unless pressed hard; and

and it was nearly of equal size from the top to the bottom: it bore so hard against the opening in the abdominal muscle, that I could, by no means, feel the spermatic process: he said, that it had appeared within a week; and, that he had had no stool for five days past.

Some of these were circumstances of importance, and might be occasioned by a stricture on the intestinal canal: but on the other hand, his pulse was soft, calm, and quiet, and his skin cool: he had neither tight belly, nausea, hiccough, nor vomiting; nor any other symptom (general or particular) deducible from such cause.

From the mere appearance, and feel of the tumor, I should have supposed it to have been caused by water; but the difficulty of distinguishing the spermatic process above, the freedom of the testicle below, and the want of stools, made me hesitate.

But though I was in some doubt concerning the precise nature of the case, yet I was very clear, there was no immediate necessity for an operation. Therefore having found, that I could not return any part of the contents

tents of the tumor into the belly, I took away sixteen ounces of blood from his arm, ordered a glyster to be thrown up immediately, and two spoonfuls of a purging mixture to be taken every two hours, until a plentiful discharge per anum should be procured.

He took his mixture only twice, and had six large stools that afternoon; and when I saw him the next morning, he was perfectly well in health, but the tumor exactly the same. I examined it again, and again, and was still more positive that it contained a fluid; but whether that fluid was in the tunica communis, or in a hernial sac, I could by no means be clear. However, as there was no possible method of getting rid of it but by an opening, I determined to make one with such caution, as to be prepared for whatever might happen.

I made a small incision into the anterior and lower part: when I had divided the skin and cellular membrane, I found a firm hard membrane, which I took for the sac of an hernia: this I divided with the same caution, and gave discharge to a considerable
quantity

quantity of serum ; upon which the whole swelling immediately subsided, the spermatic process appeared in a natural state, and the opening in the tendon undilated.

The incision was dressed superficially, and healed in a few days.

Within less than half a year he came to me again, with the swelling as large, and under the same apparant circumstances, as before. His habit was so good, and I so well remembered the toughness of the cyst, at the first operation, that I made no scruple of advising him to have it laid open through its whole length. To this he submitted, and obtained a perfect cure.

C A S E XIV.

A Man about forty, servant to one of the governors of St. Bartholomew's hospital, came thither for advice concerning a rupture ; which, he said, the surgeons in the country had often endeavoured to put up, but had never succeeded.

The groin and all the upper part of the scrotum was large and full ; but the testicle

below very fair, and distinct from the tumor. The account which he gave was, that he first perceived the beginning of the swelling, in the evening of a day in which he had ridden a very hard fox chase, and had been a good deal hurt by a fall over his horse's head. That at first it was small; and that it had gradually increased ever since. That it had never been up since it first appeared. That he constantly felt a dull kind of uneasiness in it; and that it was very troublesome to him when on horseback; which he was frequently obliged to be, as his business was that of an huntsman. I examined the case carefully, and was satisfied that it was water, and not in the vaginal coat of the testicle. He had for some time worn a truss, which had rendered the part uneasy; had lived freely with regard to liquor; had a yellowness in his countenance, which had an unhealthy appearance; his legs were rather too full; and he had, for a little while past, been under the direction of a physician in the country.

I did not like his appearance, considering him as the subject of an operation, and therefore

therefore advised him to return into the country, and continue to follow his doctor's direction.

At the distance of three or four months, he came to the hospital again. He had now the appearance of very good health. His countenance was fresh; his appetite keen; his urine in proper quantity; and his legs fine. His tumor was larger; and he said it was become so troublesome, that if something was not done for it, he must quit his service and go to the parish.

I could have wished, that his former state had been different; but having apprized him, how much that added to the hazard of any attempt toward curing him, I made an incision the whole length of the tumor, and gave discharge to a considerable quantity of clear water.

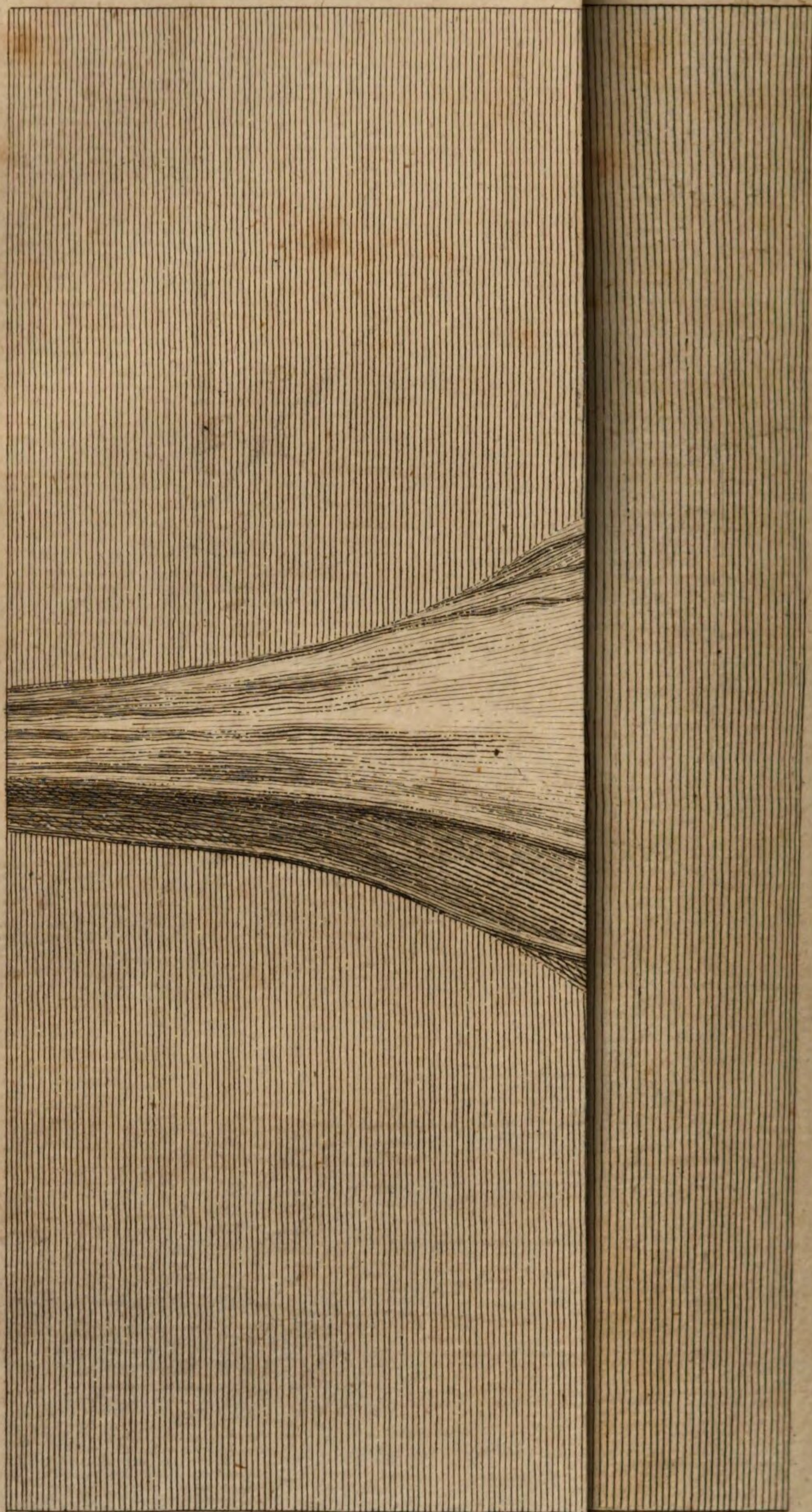
The cyst was firm and thick, and formed in the common tela cellulosa of the chord.

For three days the wound discharged a large quantity of serum, but it neither became tumid, nor inflamed; his pulse became hard, and frequent; he was thirsty,

and restless, and had a languor in his countenance, which I did not like. On the fourth day the discharge of water ceased, but the incision still remained cold, lax and flabby; and was so far from shewing any tendency to suppurate, that, on the contrary, the edges began to be livid.

Bark, and cordial medicines, were prescribed by the physician; and fomentation, poultice, and animated digestive dressings were applied; but to no purpose. On the sixth day he complained of a burning heat in his back and kidneys, while his extremities were cold and damp; on the seventh he became delirious, and that evening died.

All the cellular membrane in the pelvis, and about the loins and kidneys, was excessively distended with air, and in several places discoloured; and in the cavity of the abdomen was a large quantity of bloody water.



S E C T. VII.

Hydrocele of the Tunica Vaginalis Testis.

THE third species of this disease, is that which is confined to the vaginal coat, or bag which loosely envelopes the testicle. In the short anatomical account already given of the production, structure, and situation of this tunic, it has been observed, that in a natural, healthy state, its cavity always contains a small quantity of a fine fluid, exhaled from capillary arteries, and constantly absorbed by vessels appointed for that purpose.

This fluid, in the natural small quantity, serves to keep the tunica albuginea moist, and to prevent a cohesion between it and the vaginalis; a consequence, which almost necessarily follows any such diseased state of these parts, as prevents the due secretion of it. On the contrary, if the quantity deposited be too large, or if the regular absorption of it be by any means prevented, it will be gradually accumulated, and, by

distending the containing bag, will form the disease in question.

The two preceding species of hydrocele have their seat in the tunica communis of the spermatic vessels; that is, in the cellular membrane which invests them; one by a general diffusion of lymph through all its cells; the other by a collection of it, in one particular cyst or bag: that which makes our present subject has no concern or connection with that membrane at all, but is absolutely confined to the tunica vaginalis testis.*

* Fallopius, although he was unacquainted with the real and true origin and nature of this disease, and supposed its manner of production to be very unlike what it really is; has yet given a very just account of the appearance, both of this, and of the former: “Alia vero est
“hernia aquosa, in qua aqua distillat per vasa et venas,
“oculto modo, ac sensim ad scrotum. Hæc autem est
“duplex; alia in qua continetur aqua in *membrana adnata*,
“et in proprio folliculo; alia in qua continetur in *ingui-*
“*nali tunica quæ testem vestit*. Cognoscitur aquam esse in
“tunica adnata, *quia separatur testis a parte aquosa manibus*;
“præterea, ista hernia habebit *propriam circumscriptionem*,
“aliquando rotundam, aliquando ovalem. Si autem fit
“in vaginali, non possumus amplius *arripere et distinguere*
“*testem* ab hernia; quoniam in eodem loco et aqua, et
“testis sunt constituti.”

GAB. FALLOPIUS,

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It is a disease from which no time of life is exempt; not only adults are subject to it, but young children are frequently afflicted with it; and infants sometimes born with it. What is the immediately producing cause, I will not take upon me to affirm. Ruyfch is of opinion, that it proceeds from a varicose state of the spermatic vessels. What real foundation there may be for such conjecture, I cannot say; certain it is, that the spermatic vessels are very frequently found varicose, in persons afflicted with this kind of hydrocele; but whether such state of these parts ought to be regarded as a cause, or as an effect of the disease, is a matter worth enquiring into.

In Morgagni are some observations on the state of the parts concerned, particularly the inside of the tunica vaginalis, and outside of the albuginea; which, if repeated and confirmed, may possibly lead us on to farther information.

In the mean time, from all the circumstances attending the complaint, it is pretty clear, that whatever tends to increase the secretion of the fluid into the sacculus, be-

yond the due and necessary quantity, or to prevent its being taken up, and carried off, by the proper absorbent vessels, must contribute to its production ; which is so slow, and gradual, and at the same time so void of pain, that the patient seldom attends to it, until it has arrived to some size. Not but that it sometimes is produced very suddenly ; and in a very short space of time attains considerable magnitude.

The size and figure of the tumor are various in different people, and under different circumstances. In general, at its first beginning it is rather round ; but as it increases, it frequently assumes a pyriform kind of figure, with its larger extremity downward : sometimes it is hard, and almost incompressible ; so much so, that, in some few instances, it has been mistaken from an induration of the testicle : at other times it is so soft and lax, that both the testicle, and the fluid surrounding it, are easily discoverable. It is perfectly indolent, in itself ; though its weight does sometimes produce some small degree of uneasiness in the back. The great characteristic
(as

(as it is called) of this disease, and on which almost all writers have agreed to lay the greatest stress, and to rest their proof of the nature of the disorder, I mean the transparency of the tumor, is the most fallible, and uncertain sign belonging to it: it is a circumstance which does not depend upon the quantity, colour, or consistence of the fluid constituting the disease, so much as on the uncertain thickness, or thinness of the containing bag, and of the common membranes of the scrotum.

If they are thin, the fluid limpid, and the accumulation made so quick as not to give the tunica vaginalis time to thicken much, the rays of light may sometimes be seen to pass through the tumor: but this is accidental, and by no means to be depended upon. Whoever would be acquainted with this disorder, must learn to distinguish it by other, and those more certain marks; or he will be apt to fall into very disgraceful, as well as pernicious blunders. The colour of the fluid is very different and uncertain: sometimes it is of a pale yellow, or straw-colour; sometimes
it

it is inclined to a greenish cast; sometimes it is dark, turbid, and bloody; and sometimes it is perfectly thin and limpid.

In the beginning of the disease, if the water be accumulated slowly, and the tunica vaginalis thin and lax, the testicle may easily be perceived; but if the said tunic be firm, or the water accumulated in any considerable quantity, the testis cannot be felt at all; and other symptoms, or marks must be attended to. In most cases, the spermatic vessels may be distinctly felt at their exit from the abdominal muscle, or in the groin; which will always distinguish this complaint from an intestinal hernia, the disease which it is most likely to be confounded with. It does indeed now and then happen, that the vaginal coat is distended so high, and is so full, that it is extremely difficult, nay almost impossible, to feel the spermatic process: and it also sometimes happens, that the same kind of obscurity is occasioned by the addition of an encysted collection of water in the membrane of the chord; or by the
case

case being combined with a true enterocele. These circumstances are not very frequent, but yet do occur often enough to render it well worth while to mention them; and to signify that, when they are met with, recourse must be had to other marks.

The general notion formed of this disease is, that it consists of a bag, filled with a fluid, in the middle of which the testicle hangs suspended, and by which it is completely surrounded.

This idea is not only erroneous, and contrary to fact, but may be productive of very mischievous consequences in practice. For from such conception (or rather misconception) of the state and disposition of the parts, it may be inferred, that all points of the tumor are equally fit for such operation as may become necessary for the discharge of the fluid; which is so far from being the case, that in some parts of it, such operation is perfectly safe, easy, and harmless; in other it is hazardous, painful, and may be productive of the most dreadful consequences. Whoever will take the pains to examine the structure and disposition

tion of the two coats of the testicle, the albuginea and vaginalis, will find, that in one part they are so inseparably united, (being indeed one and the same membrane) that it is impossible for any thing to insinuate itself between them: while in every other part they are so absolutely unconnected, that from the great dilatability of the latter, a large quantity of fluid may be accumulated.*

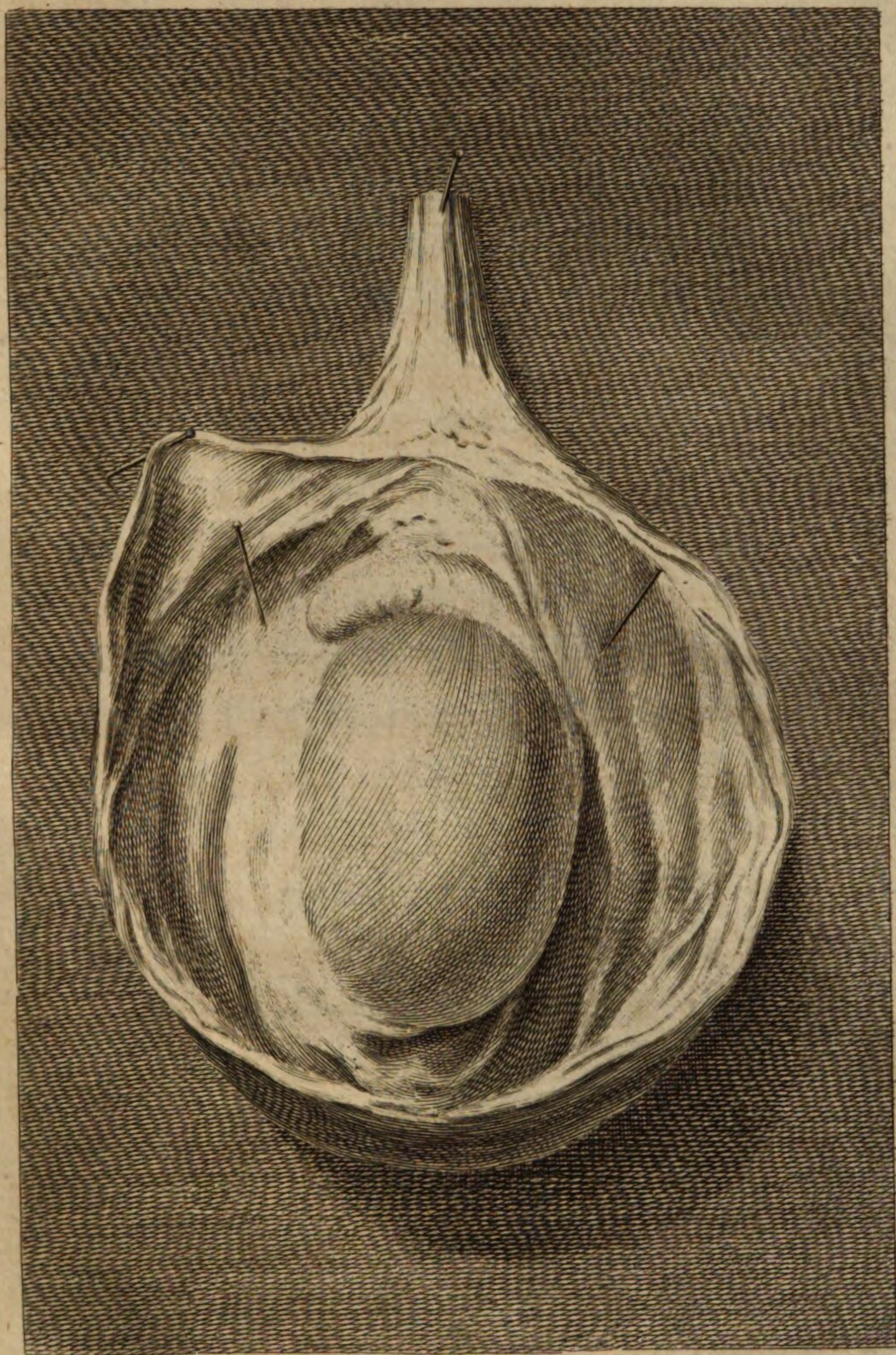
In a hydrocele which is tolerably full, the place of this union is the posterior and superior, or rather the posterior and middle part of the tumor. A puncture or incision made here, cannot only do no service, as it cannot reach the water, and

* “*Humor magna ex parte, in tunica Erythroide appellata, testiculum ambiente, in partem anteriorem colligitur; qua potissimum membrana illa a testiculo separatur.*”

PAULUS ÆGINETA.

Mr. Le Dran, whose character in practical surgery stands deservedly high, seems to be less clear in his idea, and less perspicuous in his account of this disease, than of most others: his account is, “*Une vessie aqueuse placée sur l’un de testicules, auquel elle est adhérente; et comme elle devient quelquefois très grosse, elle remplit presque tout le scrotum.*” This does not (at least to me) convey an idea that the seat of this disease is within the tunica vaginalis testis.

therefore



therefore cannot answer the intention for which it ought to be made; but must injure the testicle, or its epididymis, and thereby do great mischief; whereas an opening made in every other part, will not only give discharge to the water, but can do no harm, and is free from all kind of danger.

This natural connection between the two tunics, at the upper and hinder part, is the reason why, in a simple hydrocele, that part of the tumor feels so very unlike to every other. In that, the tunica albuginea, and vaginalis, being immediately continuous, no water can get between them; and therefore, the fingers of an intelligent examiner must immediately discover the firmness and hardness arising from the union of these parts: in all others, the two membranes being unconnected, and affording a void space for the collection of water, the fluctuation of it will always be distinguishable.

This is a circumstance which must for ever discriminate the simple hydrocele of the tunica vaginalis, from the anasarcaous swelling

swelling of the scrotum ; from the encysted hydrocele of the chord ; and from the intestinal hernia. The first is every where equal, tumid and soft ; and every where equally receives and retains the impression of the fingers : the second, though circumscribed, not very compressible, and affording the sensation of fluctuation, yet does not pit, and is alike to the touch in all parts of it : and in the third, if the testicle be distinguishable at all, it is found at the inferior part of the whole tumor.

An indurated or scirrhus testicle has indeed, very frequently, a quantity of fluid lodged in its vaginal coat ; which is a circumstance not to be wondered at ; the diseased state of the gland being sufficient to account for the non-execution of the absorbent faculty, and consequently, for the collection of the water. But although part of this mixed tumor is undoubtedly owing to a fluid, and such fluid as is lodged within the vaginal coat, yet it is a very different disease from the true simple hydrocele, and ought not to be confounded with it ; one of these marks of the latter
being

being the natural, soft, healthy state of the testicle; and the characteristic of the former, being its diseased and indurated enlargement.*

This is a point of more consequence, than it may perhaps, upon a cursory view, seem to be. It not only regards the definitions, but the treatment of the diseases; and being rightly understood, and attended to, or not, may be productive of much good or ill.

We are, by most of the writers on this subject, advised in operating for the radical cure of an hydrocele, to regard carefully the state and condition of the testicle; and if we find it enlarged, hardened, putrid, fungous, or any other way really diseased, to remove it immediately: which advice, within proper limitations, is certainly good. A testicle in almost any of the just-men-

* When I say natural, soft, and healthy state of the testicle, I do not mean, that the testicle, in a true, simple hydrocele, is never altered from its natural state, when unaffected by any disease: I know the contrary; I know that the testicle, in a hydrocele, is very frequently enlarged in size, and relaxed in structure, as well as that its spermatic vessels are often varicose: I use the words in opposition to the diseased indurated state of the scirrhus testis.

tioned circumstances, ought undoubtedly to be removed: but these cautions have nothing to do with the true, simple hydrocele; and can relate only to the diseased, the scirrhus, or the cancerous testicle. When these disorders are the subject of consideration, then such hints and cautions make a very necessary part of it; but they can have no concern with the present.*

The

* “*Namque ubi forte vel putredo, vel scirrhus, vel alia quædam corruptio vehemens testiculum invasit, fatalius excindere.*” HEISTER.

This is also the doctrine of most of the writers (a large number in surgery) who have copied each other, both in their ideas of diseases, and in their proposed method of treating them.

Not writing from practice, or from what they have seen, they have related circumstances, under the article of the simple hydrocele, which never occur; and have directed a method of conduct, which, if followed, must mislead the surgeon, and subject the patient to pain, fatigue, and even loss of parts, without any the least necessity. Under the head of radical cure of the simple hydrocele by incision, Heister has mentioned several circumstances as necessary to be attended to for the regulation of the operator's conduct, which circumstances do not occur in that disease: “*Deligari autem vasa spermatica filo, rescindique testiculus omnino debet sicuti in cap. de sarcocoele docuimus, quoties vasa feminalia, non insigniter tantum induruerunt, sed magnis quoque cruciatibus hominem ægrum affligunt.*”

The truth is, that the majority both of the ancient writers and practitioners, misled by the sound of the term hydrocele, have

“ affligunt. Despiciendum quoque porro est num testis-
 “ culus tumefactus forte materiam aliquam fluidam, sicut
 “ quandoque contingit, intus contineat. Si quid enim
 “ fluidi intus hæere tactu percipimus, aut lympham, aut
 “ pus inibi consistere rectissime colligimus. Interim
 “ neque tunc *rescindere* continuo, (ut nonnulli solent) sed
 “ incidere potius, atque expurgare testiculum istum con-
 “ veniet, &c. Sed si forte simul nimis jam tunc indura-
 “ tus, vel corruptus idem inveniatur, predicta ratione, li-
 “ gandus et ressecandus, ne in carcinoma forte abeat.”

That such state of the spermatic vessels and testicle do occur, is beyond all doubt; but not in the simple hydrocele; not in the hydrocele that any rational practitioner can possibly deem fit for the attempt for the radical cure by incision. Neither is it possible for a man, who understands the disease at all, not to be acquainted with these circumstances before he attempts such operation; and if he is previously acquainted with them, he must be a very extraordinary man indeed to set about relieving them in such a manner. If the state of the testicle and its vessels be such as to require castration (a thing always capable of being known beforehand) let that operation at once be performed, in a proper and expeditious manner, and not by piece-meal, as it is here described. If castration be not requisite, neither can any other part of the operation (with regard to the testicle) be so; for notwithstanding these descriptions of incisions into, and expurgations of diseased testicles may make a figure in books, they are very unfit to be introduced into practice. They never can do good, they must do unwarrantable, and generally irremediable mischief.

mistaken a mere accidental effect, for a cause; and have supposed that the fluid contained in the tunica vaginalis testis may not only constitute a disease by the mere distention of it, but may be productive of other diseases of the testicle itself. They have fancied the water to have in itself a noxious quality, or disposition; and that the testicle, by merely swimming in it, might become diseased, and unfit for use; whereas in cases wherein a disordered state of the testis accompanies a collection of water in its vaginal coat, the truth is just the reverse of this supposition: the testis is first diseased, and the faculty of equal, regular absorption thereby interrupted; by which means a quantity of fluid is accumulated, and that mixed appearance produced, which is not improperly called *hydro-sarcocele*. But in this case, the extravasation of water is really the consequence of the morbid state of the gland; and (being still mere simple lymph) neither is, nor can be the cause of it.

They who chuse it, may call this a species of hydrocele; and the literal sense
of

of the word will certainly vindicate them ; but they will by that means run the risque of confounding together, two things extremely unlike to each other, and which require very different treatment : I mean the true simple hydrocele, in which the testicle is soft, and sound, (only perhaps a little more lax, and larger than ordinary,) and the hydro-sarcocoele, in which the testis is not only enlarged, but hardened, and not in a sound, or healthy state : the former of these will permit such treatment with perfect safety, but in the other, may bring the patient into a state both of pain and hazard.*

It may indeed, and does sometimes become necessary to let out the water from the vaginal coat of a testicle, in some degree diseased ; but this should always be done

* Some instances of this are related in this tract. Hildanus has given a particular account of a mistake of this kind :
 “ Inciso scroto plurimum affluxit aquæ ; hinc primo sub-
 “ sedit scrotum ; post paucos tamen dies secutus est dolor,
 “ vehemens inflammatio et cancrum ulcus, maximeque
 “ malignum ; quod adeo impetuose adjacentes partes occu-
 “ pavit, ut ipsius malignitas nullo modo arceri possit ; sed
 “ intra paucos dies maximo cum cruciatu e vita decessit.”

FAB. HILDANUS.

with caution, and under a guarded prognostic; lest the patient be not only disappointed, by not having that permanent relief, which for want of better information he may be induced to expect; but be also (possibly) subjected to other unexpected inconveniences from the attempt.

Upon the whole, as just definitions, and accurate distinctions of diseases from each other, are absolutely necessary towards understanding them rightly, it seems to me much more proper to confine the term hydrocele to the mere simple accumulation of a fluid within the coats of the sound testicle, and to refer all those which either are combined with, or proceed from diseases of that gland, to another class.

When the disease is a perfect, true, simple hydrocele, the testicle, though frequently somewhat enlarged, and perhaps loosened in its vascular texture, is nevertheless (as I have already observed) sound, healthy, and capable of executing its proper office; neither is the spermatic chord any way altered from a natural state, except that its vessels are generally somewhat dilated;

ted ; neither of which circumstances are objections either to the palliative or radical cure of the disease. But in those disorders, which in some degree resemble this, the case is different ; either the testicle, or spermatic chord, or both, bearing evident marks of a diseased state. In the true, simple hydrocele, the water is accumulated merely from the non-execution of the office of the absorbent vessels ; which, (whatever ultimate cause it may have) leaves no appearance of real disease on the parts : in all the other collections of fluid in this part, there are such appearances and marks of distemper, as may clearly convince us, that the extravasation is only a consequence of such state.

The two principal complaints, liable to be mistaken for an hydrocele, are, that kind of scirrhus testicle in which an extravasation of fluid is made in the tunica vaginalis ; and the venereal induration of the testicle, attended with the same circumstance. One of these is always a disease of the general habit ; the other too often so. One requires, and generally submits to, a

proper course of specific remedies ; for the other (notwithstanding all that has been said on the subject) we as yet know of none ; and therefore it is seldom cured but by total removal. In neither of these, can the mere discharge of the fluid contribute any thing material toward a cure ; and in both of them, such attempt, injudiciously made, has often proved both painful and hazardous.

In the true venereal sarcocoele, or indurated testis, the disease ought always to be eradicated from the habit before any attempt be made locally : the mere discharge of the water can never remove the obstruction in the gland ; but when such obstruction has been by proper remedies removed, it is no uncommon thing to have the extravasated fluid again absorbed ; or if it be not, and any operation becomes necessary, a soft, easy, healthy state of the testicle, is certainly preferable to an indurated diseased one.

These two cases, or, to speak more properly, these two states of the testicle, although they agree in this one circumstance of not being essentially relieved by
the

the mere evacuation of the water, do yet differ so widely in almost every other, that it behoves practitioners to be very careful in distinguishing between them. That method of treating the venereal induration, which is most frequently successful, will prove highly prejudicial in the scirrhus hardness. By mercury, in judicious hands, the pocky patient's disease may be removed, and his health restored: but I have hardly ever seen a scirrhus or cancer that was not exasperated, and made worse by it. Or, if that does not happen, yet, a mercurial course, in such case, will always occasion a loss of time, which is not always retrievable. In short, he who treats a scirrhus testicle as he ought to do a venereal one, will not cure the disease, but waste his patient's time, and hurt his general health: and he who treats a venereal one as he most frequently ought to do a scirrhus, will, without any necessity, submit his patient to a painful operation, and thereby deprive him of a part very essential to him as a man.

C A S E XV.

A Gentleman, about thirty years old, shewed me his testicle, which was both enlarged, and hardened, and had very palpably a quantity of fluid in the vaginal coat. He had been told, that it was a water rupture, and that it might be immediately cured by means of a small incision.

The whole testicle and epididymis was (as I have already said) large and hard; and so was the vas deferens, and part of the spermatic process; but there was no kind of inequality on the surface; neither did it give the patient any pain, except what proceeded from its mere weight. He had some brown spots on his breast; a hardness below the frænum penis; a raggedness and induration of the edges of the sinus of the left tonsil; a pale plumbean countenance; and complained much of frequent pains in his knees, and elbows.

I made no scruple to inform him, that he appeared to me to be poxed; and that

I did

I did verily believe, that the disorder in his testicle arose from the same cause. I took pains to dissuade him from submitting to any attempt toward curing his local complaint in the testis, until he should have got rid of the disease which had infected his whole habit, by assuring him, that if what had been proposed to him was intended merely to let out the water, it could not even contribute to his being made well; and that if more than that was designed, he might probably experience more harm than good from the attempt. Not satisfied with my opinion, he went to Mr. Sainthill, who gave him the same kind of advice.

In a little time he applied to a gentleman well known for promising impossibilities; who told him, that this was a disease with which the faculty were perfectly unacquainted; and if he would give him ten guineas, and take a lodging near him, he would undertake to cure him in a week.

He made an incision of about half an inch in length, in the very inferior part of the tumor, and let out a small quantity of
bloody

bloody water; and then applied a pledgit of lint, and a piece of sticking-plaster. The patient passed the night in a good deal of pain, and in the morning found his testicle much swelled, and very uneasy. He sent for his operator, who said, that this was of no consequence, and that if he would keep quiet that day, he would be very well the next. On the third day his testicle was so large, so inflamed, and so painful, that he became exceedingly alarmed, and sent for me.

I found the scrotum highly inflamed; the testicle and spermatic process large and hard; his pain exceedingly great; his pulse hard, full, and frequent; and his skin hot and dry. I bled him freely, and ordered him a glyster, and a lenient purge, and wrapped the testicle up in a soft poultice. Next day, both the patient and the parts were in the same state. I bled him again; and his glyster and purge having thoroughly emptied him, I gave him two grains extract. thebaic. and directed that he should take one grain every six hours, until some ease of rest was procured.

cured. Two days were spent before any remission of symptoms was obtained: and it was near a fortnight, before the constant use and application of fomentation, cataplasm, &c. together with a general antiphlogistic regimen, and confinement to bed the whole time, had reduced the testicle to such state as to bear examination. When it became capable of this, it was found large and hard, but without any water in the tunica vaginalis. His general habit being recruited by a proper regimen, country air, and the bark; he was then put into a mercurial course, by inunction; under which, as all his other symptoms gradually disappeared, so likewise did his induration of the testicle.

C A S E XVI.

A Poor labouring man in Essex, got a venereal hernia humoralis. As his daily work would not permit him to take proper care of himself, it was a considerable while before he had got rid of his inflammatory symptoms; and when he had
so

so done, a part of the testicle and the whole epididymis were left hard, and rather too large. In getting over a high stile he missed his footstep, and struck his scrotum with violence against the upper rail: the blow gave him excessive pain for some minutes; but that soon ceased, and he went on with his day's work. Next day his testicle appeared swelled, and was painful to the touch; but as the man had no subsistence but from his labour, he was obliged to follow it. At the end of a week, he was so much worse that he could go out no longer; and making his case known to some gentlemen, who used to employ him, a neighbouring practitioner was desired to visit him. A fluctuation being felt, it was supposed to be matter; and a warm adhesive plaster was applied to forward it. In a few days an opening was made for discharge of the supposed *pus*, but nothing followed except a very small quantity of bloody serum. The smallness of the quantity, and the nature of the fluid, joined to the very small subsidence of the tumor, induced the surgeon to think he had not
gone

gone deep enough ; and to thrust a lancet farther in ; this was attended with acute pain, and followed by a copious hæmorrhage, which was not easily restrained ; or, to speak more properly, did not soon cease. Inflammation, pain, tumefaction, &c. followed this method of proceeding ; and at the end of a week, the man was brought to St. Bartholomew's hospital.

Upon mere sight of the part, I should have supposed the case to have been a scirrhus of the malignant kind : the testicle, or scrotum, was large, hard, unequal, of a deep red dusky colour, with distended veins, and so painful that it could not bear the slightest touch ; and the spermatic process was far from being in a natural or a healthy state. The man complained of constant pain in his back ; the wound discharged a bloody, offensive gleet ; and long pain, and want of rest, had given him a very diseased aspect.

Nothing but the clear, and circumstantial account, which both the man and the surgeon who had attended him (and who came with him to the hospital) gave, could have

have induced me to have thought the case to be any other than what I have just mentioned ; but they were so positive, and so consistent, that I thought myself obliged to regard what they said, and to act accordingly.

By phlebotomy, evacuations, anodynes, rest, a low regimen, and the general antiphlogistic method, pursued vigorously, and long, he got a cure.

C A S E XVII.

A Gentleman about thirty-seven years old, apparently in good health, asked my advice concerning a diseased appearance in his scrotum, for the relief of which he had come from a considerable distance to this town.

The testicle was not much increased in size, but had lost its equality of surface, and was craggy, and very hard ; the vas deferens and epididymis were in the same indurated state ; the spermatic chord was somewhat varicose, but not hard ; and in the cavity of the tunica vaginalis was palpably

pably a small quantity of fluid. It was somewhat tender to the touch; but the pain upon being handled was very slight, in comparison of what was felt an hour or two after such examination; at which time, although the pains were not constant, but rather attacked the part by intervals, yet they were extremely acute.

He said, that he had been told that his complaint was venereal, (to which opinion his method of life much inclined him to adhere) and that he had also a beginning hydrocele. I replied, that I wished, for his sake, that I could think so too; but that I had no doubt of its being a scirrhus, which would not long remain quiet. He seemed dissatisfied; and said, that considering the person who had pronounced his case to be venereal was a man of character in his profession, and whose judgment he believed was good, he thought I was rather too peremptory.

I desired him to take the opinion of some people of eminence in London, and named some to him: whether he did or not, I know not; but in about a fortnight or three weeks,

weeks, I received a letter from him out of the country, signifying, that his friend was so clear in his first opinion, that the case was venereal, that he had prevailed on him to submit to a salivation for it; and that he only now desired my opinion concerning the best method of procuring it; that is, whether he should attempt it by internals, or by mercurial inunction. I wrote back, that I was sorry to differ from his friend, or to seem too tenacious of, or partial to, my own opinion, and sincerely wished I might be mistaken; that I looked upon the method of salivating by inunction to be in general the least fatiguing or prejudicial to the constitution; and that in the case of particular, local induration, it certainly had the advantage of being applied immediately to the part affected: and therefore, if I could think that his complaint was venereal, I should undoubtedly prefer the use of the ointment to every internal means; but that I was so thoroughly satisfied that it was not, and so averse to the use of mercury for him, that I desired him to keep that letter as my protest against the process he was going into.

The

The ointment was freely used for above a month, but no alteration appeared in the testicle, except that it became rather larger and more tender to the touch.

As the mercurial ointment happened not to affect his mouth, or make him spit any considerable quantity, the inefficacy of it with regard to the testicle was imputed to that; and a course of the mercurius calcinatus, with the kermes mineral, undertaken and followed for another month. During this, the testicle manifestly increased in size, became more unequal, and more frequently painful. He now came to London again; and calling on me, told me all that had passed; but being still possessed with the venereal idea, said that he was come hither in order to try the Lisbon diet-drink, or something of that kind.

At my request he shewed his disease to Mr. Nourse and Mr. Sainthill, who were clear that it was not venereal, and advised the operation. This he would not hear of at present, having got it into his head that when every thing else had been tried, it would always be time enough for that.

During three weeks that he staid here, he drank, by the direction of some friend, every day a quart of strong decoction of sarsaparilla, with some of the sublimate solution in it. The testicle continued to increase, and the spermatic vein became somewhat varicose: but still there was a fair opportunity for extirpation. He did now indeed begin to incline to it; but being considerably reduced in strength and flesh by what he had taken, he would not comply with it until he had been in the country, and was somewhat recruited: to which I could not object, as he then did not appear to be a fit subject for such an operation; I mean, on account of his great reduction of strength.

At the end of two months, he came to me again. I was much concerned to see him so much altered for the worse: he was emaciated to the greatest degree; and had such a leaden paleness in his countenance, that had I known nothing of him, I should have concluded that such a man had a cancer about him. He had totally lost his appetite, and was never free from pain: his testicle was at least twice the size as when I last had
seen

seen it, and the whole process, quite up to the belly, large, hard, and knotty.

I would now by no means propose the operation; a consultation of physicians was therefore had, in which the solanum was prescribed. This was immediately tried, and proved here, as it has wherever I have seen it used; that is, the patient was much disordered by it in general, and received no benefit with regard to his disease: but as this affair happened not long after this poison had been in a kind of vogue, it was repeated until the patient could hardly see or hold his hand still. When this was laid aside, recourse was had to the cicuta, which, as usual, was perfectly inefficacious: to it, however, a fair trial was given. And when the poor man had thus made experiment of our most boasted specifics, and was satisfied, that no honest or judicious man would attempt the operation, we had recourse to opium, during a few weeks that he existed.

When dead, I examined him.

The spermatic process was thoroughly diseased, about half-way up from the groin to the kidney; that is, it was enlarged,

hard, and very full of knots; but I did not find any apparent disease in any other part within the abdomen.

C A S E X V I I I .

I Received a letter from Lincolnshire, in the month of November, desiring to know whether that season of the year was an improper one for the operation of castration, in the case of a scirrhus testicle? for that, if I did not, a patient labouring under such complaint would set out immediately upon the receipt of my answer.

I wrote back, that the state and nature of the disease were of much more consequence toward determining the propriety or impropriety of an operation, than the time of the year could be: and therefore I desired either that I might have a circumstantial account of the case, from some medical man, or that the patient would come to London. In about a week I received another letter, containing the following account.

That the patient was thirty-five years old; that previous to the appearance of the disease
in

in the testicle, he had for some weeks been troubled with frequent and acute pains in his back and loins; that the testicle was considerably enlarged, indurated, and (in its posterior part) unequal in its surface; that part of the spermatic process, nearest to the testis, was too hard also; that the whole of it was now perfectly free from pain; that the patient was a married man, much subject to scorbutic eruptions, and flying pains, from the same cause; that his appetite was fallen off, and his aspect become pale and wan; that he had taken a considerable quantity of the cicuta, and as much of the infusion of the solanum as his weak state would bear; that from the former he had neither experienced good nor harm, but that the latter had disagreed with him extremely; that he was now determined for the operation; and that he would be in London in a few days.

In less than a fortnight he came to me. He was extremely thin; and had a countenance so pale, and eyes so languid, that I made no doubt that his nights were sleepless. His testicle was large and hard, but perfectly equal, and perfectly indolent; the tunica

vaginalis contained a small quantity of limpid fluid ; and the vas deferens, and epididymis had that kind of enlargement and induration which frequently accompanies a hernia humoralis : but the spermatic vessels were in a natural state, of proper size, and free from all kind of induration. He was so hoarse, that I could hardly hear him speak ; and so deaf, that it was as difficult to make him hear. He complained much of frequent pains in his shoulders and elbows, one of the latter of which was considerably stiffened. The biceps muscle of the left arm was hard and gummy ; on one of his eye-brows was a large spot, with a thin scab on it ; and, between the scapulæ, were four or five of the same.

I told him, that I had no doubt that his deafness, hoarseness, pain, spots, swellings, &c. were all venereal ; and that I was much inclined to believe, that the complaint in his testicle proceeded from the same cause. He did as venereal patients are frequently too apt to do ; that is, he endeavoured to render my opinion improbable, by attesting, that there had been an interval of some years
since

since he had held any illicit commerce with any woman whom he could suppose capable of injuring him; that he had been two or three years married; had only had a slight shanker, of which he was sure he had been well cured, &c.

I answered, that I was clear in my opinion; and would undertake to serve him on no other principle; but desired him to take the judgment of some other gentlemen of the profession: which he did, and returned to me again with an account, that they thought of his case as I had done.

The weakened reduced state in which he was, and a natural disposition which he had to a hæmoptysis, obliged me to proceed very cautiously: his stomach would bear no medicine of the mercurial kind; and a very little acceleration of pulse made him hawk up a bloody phlegm. I therefore determined upon the ointment in small quantities, and to do in this case what I have done in similar cases several times; that is, as soon as ever the mercury raised the pulse, or began to affect the mouth, I ordered him to take a decoct. corticis twice or thrice a day, through the whole of the salivation.

By these means he got rid of all his complaints, both general and particular, and came out of his mercurial course with a more healthy aspect, and more flesh on his bones, than he went into it.

Before I proceed to give an account of the means used for the relief, or cure, of the hydrocele of the tunica vaginalis testis, it may not be improper to inform the reader, that I have twice in my life seen this disease, though in a confirmed state, and in adult patients, disperse.

C A S E XIX.

A Gentleman about forty-five years old, consulted me on account of a swelling in his scrotum, which was not very large, but palpably contained a fluid, and was so circumstanced in every respect, as to prove it to be a true hydrocele of the vaginal tunic; from which I advised him to have the water immediately drawn off.

As it was not very troublesome to him, he did not chuse to have it done then; but went
away,

away, telling me, that I should soon see him again. He took the opinions of two others, both of whom told him the same thing, and gave him the same advice.

At the end of half a year he came to me again, with the scrotum full, and of a pyriform figure, and so large as to be very evident though his breeches.

I would have tapped him immediately, but as he had never seen any thing of the kind, I could not convince him that it would not confine him the next day; and as he had some particular business to transact in the country, he chose to go thither first, and to submit to the operation when he should return from thence.

I saw no more of him for near two months; at the end of which time he called upon me, and shewed me a scrotum perfectly empty, and free from disease.

Taking it for granted that he had been tapped, I asked him who had done it for him: he told me, that before he could finish the business for which he went into the country, he was seized (for the first time in his life) with a severe fit of the
gout;

gout; which had confined him to his bed for six weeks; during which confinement, his swelling had gradually and totally dissipated.

I have often seen him since, and he still remains perfectly free from all appearance of disease.

C A S E X X.

A Middle-aged man shewed me a hydrocele of the vaginal tunic, which had been near two years collecting, but from which the water had never been drawn; I advised him to have it done soon, and he fixed on the next morning.

In his way home, he got fuddled; fell down into the area of an empty house, and in his fall struck his scrotum against a piece of scaffolding.

In the morning early he sent for me. I found him in bed, with a great ecchymosis under the skin of the scrotum, which was much swollen, and very painful; I would have persuaded him to have permitted me to
let

let the water out, (thinking thereby to have taken off part of the tension) but he would not consent; and I was obliged to have recourse to fomentation, cataplasm, &c.

In about a fortnight, all the ecchymosis was dissipated, and all the swelling from the sound side of the scrotum; and both the patient, and myself thought, that the tumor from the hydrocele was considerably less than it was before the accident. By persisting in the same method, for about three weeks more, the whole of it disappeared, nor has returned since. Nor have I, ever since, seen the same attempt succeed.

S E C T. VIII.

Methods of curing the Hydrocele of the Vaginal Coat.

THE methods of cure (as they are called) in this species of hydrocele, though various, are reducible to two, (viz.) the palliative, or that which pretends only to relieve the disease in present, by discharging the

the fluid; and the radical, or that which aims at a perfect cure, without leaving a possibility of relapse. The end of the former is accomplished by merely opening the containing bag in such manner as to let out the water: that of the latter cannot be obtained, unless the cavity of that bag be abolished; and no receptacle for a future accumulation left. One, may be practised at all times of the patient's life, and in *almost* any state of health and habit: the other lies under some restraints and prohibitions; arising from the circumstances of age, constitution, state of the parts, &c. &c. &c.

The palliative cure, (as I have just observed) consists in merely giving discharge to the fluid which is contained in, and distends, the tunica vaginalis.

The operation by which this may be accomplished, is a very simple one. The only circumstances requiring our attention in it, are, the instrument wherewith we would perform it; and the place or part of the tumor, into which such instrument should be passed.

The two instruments in use, are the common bleeding lancet, and the trochar.

The

K



The former having the finer point, may possibly pass in rather the easier, (though the difference is hardly perceptible) but is, in my opinion, liable to inconveniences, to which the latter is not. The trochar, by means of its cannula, secures the exit of the whole fluid without a possibility of prevention; the lancet cannot. And therefore it frequently happens when this instrument is used, either, that some of the water is left behind; or that some degree of handling and squeezing is required for its expulsion; or, that the introduction of a probe, or a director, or some such instrument, becomes necessary for the same purpose. The former of these may in some habits be productive of inflammation: * the latter prolongs what would otherwise be a short operation, and multiplies the necessary instruments; which, in every operation in surgery, is wrong. To which it may be added, that if any of the fluid be left in the vaginal coat, or insinuates itself into the cells of the dartos, the patient

* A consequence which I have seen to proceed from it, attended with a slough of the whole dartos, and which I am much inclined to believe would not have happened in the same person, had the water been drawn off by a trochar.

will

will have reason to think the operation imperfect, and to fear that he shall not reap even the temporary advantage which he expected. The place where this puncture ought to be made, is a circumstance of much more real consequence; the success of the attempt, the ease, and even sometimes the safety of the patient, depending upon it.

Whoever conceives, as many have done, and some still do, that the testicle hangs loose in the middle of the water within the vaginal coat (like a clapper within a bell) must also suppose that every part of the general tumor is equally fit and proper for this operation. The idea is erroneous, and the experiment may prove highly mischievous. All the anterior and lateral parts of the vaginal coat are loose and detached from the albuginea; in its posterior and superior part, these two tunics make one; consequently the testicle is, as it were, affixed to the posterior and superior part of the cavity of the sac of an hydrocele; and consequently, the water or fluid can never get quite round it. This being the state of the case, the operation

operation ought always to be performed on that part of the tumor, where the two coats are at the greatest distance from each other, and where the fluid must therefore be accumulated in the largest quantity ; and never on that part of it where the fluid cannot possibly be. The consequence of acting otherwise, must not only produce a disappointment, by not reaching the said fluid ; but may prove, and has proved, highly and even fatally mischievous to the patient.

It was a custom formerly, after performing this operation, to make use of fomentations, and discutient applications, upon a supposition that by such means a return of the disease might be prevented. Among the old writers, are to be found the forms of medicines to be applied to the groin and scrotum, to prevent a future descent of the fluid ; but anatomy, and experience, have proved the falshood of such supposition, and the absurdity of such applications : the present practitioners content themselves with a bit of lint, and a plaster ; and if the scrotum has been considerably distended, they suspend it in a bag truss ; and give the patient no farther trouble.

In

In most people, the orifice thus made heals in a few hours, (like that made for blood-letting;) but in some habits and circumstances, it inflames and festers; this festering is generally superficial only, and is soon quieted by any simple dressing; but it sometimes is so considerable, and extends so deep, as to affect the vaginal coat, and by accident produce a radical cure. I have also seen it prove still more troublesome, and even fatal: but then the circumstances both of the patient, and of the case, have been particular, and such as required attention. (See Cases 21, and 22.)

Whether it arose from a fear of wounding the testicle in the operation; or from a supposition that while the quantity was small, it was more likely to disperse; or that while there was but little fluid, they did not think the disease sufficiently characterised; or from some other reason, which they have not thought fit to give us; but many writers of good authority, (and among them Mr. Serjeant Wiseman,) have forbid the puncture in an adult, while the quantity may be supposed to be under a pint: which

which restriction is still scrupulously attended to by many practitioners, to the no small trouble and inconvenience of their patients.

When there is a sufficient quantity of fluid to keep the testicle from the instrument, there can be no reason for deferring the discharge; and the single point on which this argument ought to rest, is this: “Whether the absorbent vessels, by which
“the extravasation should be prevented,
“are more likely to reassume their office,
“while the vaginal coat is thin, and has
“suffered but little violence from distension; or after it has been stretched and
“distended to ten or perhaps twenty times
“its natural capacity; and by such distension is (like all other membranes) become thick, hard, and tough?” For my own part, I think the probability so much more on the side of the former, that I should never hesitate a moment about letting out the water, as soon as I found that the puncture could be made securely. And from what has happened within the small circle of my own experience, I am inclined

to believe, that if it was performed more early than it generally is, it might sometimes prevent the return of the disease.

C A S E X X I.

A Gentleman, turned of fixty, came to me with an hydrocele of the tunica vaginalis.

He was corpulent, full habited, inclined to be asthmatic, and subject to an irregular kind of gouty inflammation, which attacked different parts of him, at different times. The disease was on the right side, the scrotum much distended, and on the skin of it was an inflammatory kind of blush. His pulse was hard, and as I thought too frequent, and he seemed to me to have a degree of heat and thirst, not consistent with health. His age, his habit, his general state, and what I apprehended to be the state of the sac, all forbade any attempt but the puncture; and I took some pains to dissuade him from that, until he should have removed both his general complaints,
and

and the local inflammation on the scrotum. He said, that he felt himself perfectly well; that he was sure he had no gout about him then; that what I took for an inflammation on the scrotum was only a scorbutic eruption to which he was frequently subject; and concluded with a hint, that he thought whatever should be done previous to letting out the water, could be designed only for my own benefit, by lengthening the time of my attendance.

I pierced the middle and anterior part of the scrotum with a small trochar, and drew off near a quart of a greenish fluid; I put a bit of lint and plaster on the orifice, and as the empty scrotum hung very loose, and flabby, I persuaded him to let it be suspended in a bag truss.

In the afternoon he went out; and at night finding that the plaster was rubbed off, and thinking that the suspensory was put on for no other reason, but merely to keep the dressing on, he took off his bandage.

Next day he went out again, walked a good deal, drank freely after dinner, and

when he came to his lodging in the evening he went to bed much out of order. In the night he had a severe rigor, for which he took a large spoonful of a tincture of snake-root and saffron, which he always kept by him.

On the third day, finding his scrotum much swollen, and very uneasy, he sent for me.

I found him in bed, complaining of great pain in the lower part of his belly, and groin: his pulse was quick, hard, and irregular; his skin hot; his tongue dry, and black; his countenance flushed; and his intellects not quite steady. His scrotum was swelled and inflamed all over; and in a part, considerably distant from the puncture, was a mortified spot as big as a shilling.

After I had dressed him, I desired, as he was quite a stranger to me, as well as to the people of the house where he lodged, that he might have more assistance: accordingly a physician was sent for, who prescribed for him. At the end of three days one half of the scrotum was completely

pleatly mortified; and in about seven more it cast off, with so large a portion of the tunica vaginalis, that I had no doubt that none of it was left.

The gout now made an attack on his feet, and the inflammation left all other parts; the sore put on a good aspect, and in a short time he got well. But notwithstanding the very large portion of the vaginal coat which came away in a slough, I have twice since drawn off a full pint of water from the same side.

C A S E XXII.

A Man about forty, afflicted with a large hydrocele of the tunica vaginalis, and which, from a misapprehension of the true nature of the disease, he had never consulted any body about, having been robbed by a servant of a considerable sum of money, was obliged to travel very hard, on horseback, from the neighbourhood of Exeter, to London.

When he set out, his scrotum was free from all disease, except its distention by

the water; but when he came to this town, it was covered all over with an inflammation of the erysipelatous kind; was much increased in size, and very painful to the touch. He was much fatigued with his journey, and just before he went to bed in the evening, had a shivering, which was followed by a very restless night, and a considerable degree of fever. In the morning his scrotum was so much inflamed, that he was alarmed at the appearance, and sent for assistance. The person who came to him, immediately made an opening, by means of a pointed knife, into the tunica vaginalis, and gave discharge to a considerable quantity of water; but by night, the whole scrotum was mortified. That evening I saw him, but without any hopes of being able to serve him. His pulse, which had been full, hard, and rapid, was now small, and faltering; his head was very unsteady, and his extremities cold; all the tumefaction of the scrotum was gone, and it seemed one large eschar. On the next morning he died.

Now,

Now, though it be very possible, that the same appearance and event might have ensued, if no puncture had been made; yet I think it is very clear, that it would have been more prudent to have tried first what a soft cataplasm, and an antiphlogistic method could have done. For, by making the opening hastily, and without a proper prognostic, the operator (whether deservedly or not) incurred all the blame.

C A S E XXIII.

A Poor man was brought from the neighbourhood of Rosemary-lane, to St. Bartholomew's hospital.

His scrotum was of prodigious size; very hard, excessively inflamed, quite up to his groin; it was of a dusky red colour; extremely painful to the touch; and in one part seemed inclined to sphacelate; the spermatic process also was considerably thickened. He had a hard, full, rapid pulse; a hot skin, a flushed countenance, great thirst; and complained of most excruciating pain in his back.

The account he gave was, that he had, for some years, been troubled with a swelling on the right side of his scrotum, which some of the surgeons of St. Thomas's hospital had told him was a water-rupture, and would have tapped: that he had also applied to several rupture-doctors, each of whom had sold him a bandage, and some of them had pretended to cure him by medicines and applications; that finding no relief from any of these, he had a few days before given an itinerant stage-quack three guineas to cure him. That this operator laid him on his back, on a couch, and lifting up the tumor, thrust an instrument into it. That no discharge followed but blood. That it bled for near a quarter of an hour, and then stopped upon his fainting away. That from the time of this operation (which was two days) he had been in extreme pain; and, that his operator not coming to take any care of him, his friends had brought him to the hospital. He was immediately bled, had a glyster injected, and the scrotum was enveloped in a soft, warm poultice, and tied up

up in a bag truss. When he had passed a stool, I ordered him a grain of extract. thebaic. to be taken immediately, and repeated again at the distance of six or eight hours. Next day he was much the same in every respect; his pain was excessive, particularly in his back, and he had not closed his eyes. I bled him again freely, (he had two stools in the night) and gave him two grains of opium, and direction to repeat one grain every six hours until he got ease and sleep. His scrotum was well fomented, and the cataplasm continued. Two days more were spent in this manner, before we obtained any remission of the symptoms; when that was done, I pierced the anterior part of the tumor, and drew off more than a pint of bloody serum. The testicle now appeared very much enlarged, and hardened; but, by persisting in the antiphlogistic method, he at length got well.

I suppose the reader will have as little doubt as I have, that all this mischief was produced by wounding the testicle, or epididymis.

CASE

C A S E XXIV.

A Young fellow, who was waiter at a tavern in the city, and who had for some months past laboured under a succession of pocky symptoms, had at last a true venereal sarcocoele, with a small quantity of fluid in the vaginal coat.

As he had several other venereal symptoms then upon him, and his way of life subjected him to great irregularity, I advised him to obtain leave to quit his place, and attend to his cure. This he did not chuse to comply with; and I heard no more of him till about a month afterwards, when his master desired me to call at his house.

I found the lad in bed, with a high fever, and with his scrotum swelled and inflamed to a very great degree. He said, that two days before he had met with an acquaintance, (a surgeon's mate of a man of war) who told him, that his whole complaint was a water-rupture, and that
for

for a bottle of claret he would cure him immediately. That he had thrust a lancet deep into the lower part of the swelling ; that nothing followed but blood ; that he had spent some minutes in poking into it with a probe, in hopes of getting the water out, but ineffectually ; but that he had been in racking pain ever since. Phlebotomy, glysters, opiates, febrifuge medicines, &c. were all employed, by which means his pain, fever, &c. were at length got the better of ; but almost the whole testicle cast off in one large slough.

Means for a Radical Cure.

EVERY other method of treating this kind of hydrocele, except the puncture, was either originally intended to obtain a radical cure ; or, having been found to have been often productive of such, has been, by different people, ranked sometimes among the palliative, sometimes among the radical means.

In many of the old writers are found directions for obtaining the cure of this disease

disease by the use of a seton, a cannula, a tent, a caustic, a ligature, an injection, or an incision.

Some of these are adopted or preferred by one, and some by another, according to the theory which they entertained of the disorder, or to the benefits which they had seen to have accidentally arisen from the use of the said means.

To reduce these under some kind of method, (which the manner of their being delivered to us, does in general not very easily admit) we may say, that the seton, the tent, and the cannula, were either originally meant to palliate a disease, of which the old practitioners had very disagreeable apprehensions ; or that they were made use of upon a supposition that the fluid contained in the cyst was in itself noxious ; or that the general habit of the patient was relieved, and many other disorders prevented by the said humor falling, or being deposited in that part ; or from an opinion that the cure of it ought not, by any means, to be hastily or rashly attempted : that
the

the caustic, cautery, and ligature, were designed to prevent the supposed descent of the water from the abdomen into the scrotum : and, that the injection was calculated for the constriction of a supposed breach in lymphatic vessels.

Some of these (happily for mankind) are now quite laid aside ; the reasons for their use being found to be false and groundless : of this kind are the cautery, the ligature, and the injection. The water is now, by every body who has made any enquiry into the matter, known to be formed and collected in the part where it is found ; and not to have fallen into it from the belly : and, though an obstruction in the lymphatic vessels of the spermatic chord, may in some degree prevent the regular and due absorption of the fluid from the vaginal tunic, yet, no breach or rupture of such vessels can ever produce the disease in question : the extravasation, in such case, must be in another part ; and may possibly cause a hydrocele of the cellular kind, in the common membrane of the spermatic vessels, but which can never be found within the tunica vaginalis.

The

The reasons originally given for the use of the tent and the cannula, viz. the noxious quality of the fluid, and the necessity of a gradual cure, are now also known and acknowledged to be without foundation; and therefore though these methods, or methods like these, do still continue to be used, yet it is with another view, and upon other principles: not with intention to lengthen the time of a cure, by making a gradual drain for the prevention of other disorders; but merely to abolish the cavity of the tunica vaginalis, by having excited and maintained such a degree of inflammation and suppuration, as shall produce an union between that coat, and the albuginea testis.

This is indeed the only rational end which can, by any of these means, be pursued: for the disorder being absolutely local, and the tunica vaginalis (the seat of it) most commonly somewhat altered from its natural state, by having been distended; unless the absorbent vessels can again be restored to a capacity of doing their duty, (a circumstance which does not very often happen)

happen) the arteries will continue to exhale new serum into the cavity, and the hydrocele will still remain, or be renewed in a short time after each discharge.

To obtain this end, two kinds of means are proposed ; in the use of one, it is intended, by means of a small wound, to excite such a degree of inflammation, as shall occasion, or be followed by a total and absolute cohesion of the tunica vaginalis with the tunica albuginea : in the other, a larger and more free incision is made ; whereby the cavity of the former of these coats is converted into a hollow or open sore, or ulcer, to be filled up by a new incarnation ; or else, a part of the said tunic being cut away, its power of again holding the extravasated fluid is equally prevented.

The first, or union of the two coats in consequence of inflammation, has sometimes been found to follow the use of such means as were intended to procure only a temporary relief : it sometimes follows the simple puncture with the trochar, or lancet ; the ancient method of letting out the
water,

water, by a small incision, frequently produced it; * and the seton, the tent, and the cannula, though used for another purpose, or at least for other reasons, were found to be followed by it so often, that they soon were ranked among the means for obtaining a radical cure.†

They

* This was by making, first an incision of some length, through the scrotum and dartos, so as to lay the tunica vaginalis bare, and then by making a puncture in the latter. The accounts given by Brunus and Theodoric, are the same as that of all the writers before them, and have been copied by many since: “Curatio ejus est, ut incidatur
“cutis testiculorum sectione ampla secundum longitudi-
“nem ejus; dein perfora, et aquam extrahe.”

† Many of the old writers have left us directions for passing the seton, and for introducing the tent, either of lint or sponge, and the cannula, either of alder, or of silver.

Gulielmus e Saliceto, having first proposed the use of external applications, says, “Si hac via non consumitur
“aqua, tunc perfora bursam, cum phlebotomo tuo acuto,
“et extrahe aquam, non subito totam, sed partem; et
“pone in foramine illo tentam lineam, vel stuppeam, aut
“spongiam; ut posses de die in diem aquam extrahere: et
“nota, quod hujusmodi ægritudo multoties recidivat; et
“si sic, semper redeas ad perforationem antedictam: et
“via ista, et modo, perfecte curabitur.”

Fabritius ab Aquapendente speaks of the tent as frequently used by him in the mixed case of hydrocele and sarcocoele, or diseased testicle; though by the account he
gives

They were indeed, (as I have already observed) originally designed to discharge the

gives of his success it is pretty clear that he used it in the hydrocele only, or when the testicle was not really diseased. His words are, “ Si carnofa fimul et aquofa fit
 “ hernia, ego talem adhibeo curam. Seco cutem, et
 “ incifionem facio exiguam, et in loco potius altiori,
 “ quam in fundo ; inde, turunda impofita cum digeftivo,
 “ et pus movente medicamento procedo, neque unquam
 “ totum pus extraho, fed perpetuo bonam partem intus
 “ relinquo, quod fenfim carnem corrodat, et ita fanat.”

An adhefion of the vaginal coat with the albuginea, may be the confequence of fuch treatment of an hydrocele, and confequently fuch patient may obtain a radical cure ; but whoever has feen any thing of the difeafe properly called a farcocele, will know, that it will very feldom bear fuch rough treatment.

This method of procuring a firm cure (by the tent) is mentioned by Ruysch : “ Sanari quidem valet id mali per-
 “ tufo fcroto, ope inftrumenti touchart dicto, vel lanceola
 “ phlebotomica, ut aqua vulnere exeat, fed cito plerum-
 “ que recrudescit malum. Si autem curationem aggre-
 “ deris aperiendo fcrotum a parte superiori ad latus, tum-
 “ que vulnus turunda oblonga unguento rofaceo, mer-
 “ curio precipitato rubro inuncto oppleveris, donec lenis
 “ inflammatio, eique fuccedens fuppuratio parva, mem-
 “ branulas ftillantes putrefecerit, tuncque eas tenaculo
 “ eduxeris,” &c.

Professor Monro, of Edinburgh, has propofed a method of cure upon the fame principle ; but much better, and more likely to procure the one thing aimed at, (the lenis inflammatio) as he employs no cathartic medicines. His words are, “ Considering how readily contiguous inflamed

the water gradually ; and to continue such a drain from the parts where it had been collected,

“ parts grow together ; and how many instances there are,
 “ of people having a radical cure made of this hydrocele,
 “ by inflammations coming on the part ; it would seem
 “ no unreasonable practice, to endeavour a concretion of
 “ the two coats of the testicle, when they are brought
 “ contiguous, after letting out the water through the
 “ cannula of a trochar, by artfully raising a sufficient
 “ degree of inflammation.

“ This to be sure must be done cautiously, and so that
 “ the surgeon can reasonably expect to be master of the
 “ inflammation ; and therefore the application of all irri-
 “ tating medicines, the operation of which he could not
 “ immediately stop, or any single mechanical effort, the
 “ effect of which he could not be sure of, are not to be
 “ employed.

“ Suppose the cannula of the trochar was to be left in ;
 “ by the extremity of it rubbing against the testicle, an
 “ inflammation might be artfully raised ; the cause of
 “ which might be taken away as soon as the surgeon
 “ thought fit,” &c. MEDICAL ESSAYS.

This method, with some small alteration, I have once or twice used with success. Being afraid of the pain which might be caused by the extremity of the cannula rubbing against the tunica albuginea, and the irritation in consequence thereof, I have left it in, but with a piece of bougie (whose length exceeded that of the cannula about a quarter or an eighth of an inch) within it. Of all the methods of using a tent, I think this is the best, as the cannula secures its passage into the cavity of the vaginal coat ; which the collapsing of that tunic, and the loose texture of the dartos, would otherwise render somewhat difficult. But although I have once or twice succeeded in
 this

collected, as might prevent any of the ill consequences apprehended from the removal of the local disorder: but the inflammation, which supervened sometimes, producing a cohesion of the sacculus to the surface of the testicle, what was originally calculated for a palliative remedy only, was by many adopted for a radical one.

If the event, and consequence flowing from these means, were as much in our power, as they have been said to be; that is, if we could with any tolerable precision or certainty determine the degree of inflammation to be excited, and the effect of such inflammation on the vaginal coat, there would be no doubt of the utility of

this manner, I have much oftener been frustrated: sometimes it has proved absolutely ineffectual; and at others, I have seen it raise such a disturbance, as to render it necessary to lay the whole cavity open before a cure could be obtained.

Of all the methods of obtaining a radical cure of an hydrocele, by exciting inflammation within the tunica vaginalis, and thereby obtaining an adhesion between it and the albuginea, that by the seton is by much the best; it is the least painful, the most easily managed, excites the least troublesome symptoms, and is the most frequently successful; but, as I shall have occasion to speak of this hereafter, I shall defer saying any more concerning it in this place.

them ; but this is far from being the case : for although it sometimes is sufficient for the purpose wished for, and rises no higher than just to a degree equal to that purpose, yet it also frequently happens, that either such degree and extent of it is not excited, or it rises much higher, and proves much more painful and fatiguing, than was promised or intended ; or (what I have several times seen) after a great deal of pain and confinement, a partial cohesion only has been the consequence, and the disease has still remained, notwithstanding all the patient's and our trouble. Sometimes the pain, inflammation, and symptomatic fever are but little ; but on the other hand, they are all three sometimes so great as to become alarming, at least to a patient who has been taught to expect a cure upon much more easy terms. The whole scrotum sometimes becomes excessively inflamed, and after a good deal of pain and trouble, large deep floughs are produced, and the process becomes as irksome as any of those, whose event, (with regard to a cure) is much more certain.

If

If the inflammation be but slight; the pain, and tumefaction, moderate; the symptomatic fever light; the suppuration small; and an universal cohesion of the two membranes is produced; the event is very fortunate, and a very troublesome complaint is thereby got rid of, upon very easy terms. If the event proves what I have mentioned in the second place; that is, if either the inflammation be confined to the dartos, where it sometimes produces several superficial abscesses (of no consequence toward the cure of the disease;) or if it has been so partial, as only to have occasioned the cohesion between the tunics of small compass, the cavity will not by this means be abolished, nor any thing like a radical cure be obtained; consequently the patient will have undergone all the fatigue, confinement, or pain, (be it more or less) for nothing. But if the inflammation rises high, if the scrotum swells considerably, and large deep floughs are formed (as sometimes happens) the symptoms, and the hazard, are then fully equal to what attend those more certain methods. Which of

the three will be the event, no man can say. Under the same external appearances, different people are more or less liable to inflammation, and fever. The confinement of matter, in consequence of too small an opening, will in some habits make strange havock, in a very short time; and if a large opening and a plentiful suppuration must at last be submitted to, the method by a large incision at first, is preferable, as the cure is more certain, and the loss of time less. Different circumstances in the patient will render one method preferable to, and more likely to succeed than another; but whenever a cure is attempted by any of the before-mentioned means, the uncertainty of the event should be made known, and the patient be apprised of what may happen, either with regard to trouble or disappointment.

All the methods hitherto taken notice of, are calculated to produce a perfect, or radical cure, without making a large wound, or bearing the appearance of a surgical operation: those of which I am now to speak, are intended for the same purpose;

purpose; but by making a large and free opening into the bag containing the fluid, to render the accomplishment of such purpose more certain.

These are called the cure by *caustic*, and the cure by *incision*. The cure by caustic is calculated to spare the terror which a cutting instrument always conveys; and, (as the patrons of it say) to avoid the painful symptoms, and hazard, which frequently attend a large incision in these parts. The method is this: a piece of the common paste caustic, rather less than a finger's breadth, properly secured by plaster, is applied the whole length of the anterior part of the tumor, which will necessarily make an eschar of proportional size. When this eschar either casts off, or is divided, an opening of nearly the same length and breadth is thereby intended to be made into the cavity of the tunica vaginalis testis: by which means an opportunity is given to the surgeon to apply such dressings to the inside of the said tunic, as shall, by the generation of new flesh, fill up, and abolish its cavity. The preference

Pott, Percivall, 1713-1788

The Chirurgical Works Of Percival Pott, F.R.S. ... In Three Volumes

Bd.: 2.

London (1783)

Regensburg, Staatliche Bibliothek -- 999/Med.1766(2

urn:nbn:de:bvb:12-bsb11107423-1